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STON MEDICAL
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MERCK'S BULLETIN

A Periodical Record of New Discoveries, Introductions, or Applications of Medicinal Chemicals.

[redacted] Moved by Professional – not Business – Interest. [redacted]

No. 1 of Vol. 1. DARMSTADT—LONDON—NEW YORK. Feb., 1888.

Publication-office in New York City: 73 William St.—P. O. Box No. 0 173.

Subscription :—$0.50 per year.—*Publication* :—Bi-monthly.—(Extra numbers as occasion may require.)

Strophanthus (Tincture); and **Strophanthin Merck** (Glucoside).—**A New Heart Remedy** (*in two forms*).

Effects. The action of these preparations on the heart, as hitherto observed, is said to be an exceedingly beneficial one. A constant and rapid subsidence of an excited pulse is brought about within a few minutes; and neither the digestive troubles nor the cumulative effects so often consequent upon Digitaline medication have been observed, even after several weeks' use of the Strophanthus preparations.

Discovery. Medical science is indebted to Prof. Fraser for the first accounts, given in the year 1871, of *Strophanthus*, and of the toxical principle contained in the seeds of this plant.

History. Two years later, "Just's Botanic Annual" published a more detailed description of the plant. According to it, *Strophanthus* is an exogenous creeper, belonging to the *Apocyneæ*; climbing the highest trees, and indigenous to the valley and mountain forests situated above the Victoria Falls of the Zambesi.

Description. The fruit of the plant ripens in June. It is a pod, growing up to 12 inches in length, composed of a rough external and a somewhat leathery internal shell, containing as many as 200 seeds.

The seeds are about 15 to 20 mm. long, 4 mm. broad, and 1 mm. thick. At one end they taper off to a fine point, culminating in a stalk nearly 9 cm. long, the upper third of which forms a hairy tuft; these hairs are about 6 cm. long, of a silky gloss, delicate and brittle, and protrude on all sides in the shape of a sprinkling-whisk. At their base, the seeds are obtuse, of a yellowish-white color and covered with a layer of soft, silky and closely adherent hair.

At present, there are two kinds of these seeds in the market, a greenish-brown and a white variety. The former, said to be the fruit of *Strophanthus hispidus*, was defined as Kombé Seed (Parent plant: *Strophanthus Kombé Oliver*) by Prof. Oliver, of Kew. The question of the identity of these seeds does not appear, however, to be definitely settled as yet; and the possibility is therefore not excluded that the white seeds are the real Kombé seeds, from which the natives prepare the Kombé Poison.

The seeds contain, besides fixed oils and albumen, that intensive poison which, by the name of Kombé, Inee or Onage, has been used for a long time in West and Central Africa for poisoning arrow-heads.

A green tincture, containing the active principle in solution, may be extracted from the seeds by means of strong alcohol. If, previous to this, the fixed oil of the seeds be extracted by ether, this ethereal solution will likewise contain a certain percentage of Strophanthin; and to this fact, in part, the slight efficacy of the commercial alcoholic tincture of Strophanthus is attributed.

Strophanthin.

The Strophanthin produced by me from Strophanthus seed is a white crystalline powder, melting at about 365° F., evaporating without residue, and showing very intensively the reactions of Elborn and Helbing.

Both Strophanthus tincture and Strophanthin are employed in medicine.

The tincture is of a pale yellow color, has a peculiar penetrating odor, and a persistent bitter taste; the dose is of *5, 10 up to 20 drops*, twice a day, to be taken either pure or in *Aqua Laurocerasi*.

Dose.

The single dose of Strophanthin is placed by British physicians at *0.005 of a grain*. In the Vienna Imperial Public Hospital, it is used to the extent of $\frac{1}{64}$ to $\frac{1}{32}$ of a grain per diem, ordinarily dissolved in *Aqua Laurocerasi*, and given a drop at a time.

E. MERCK.

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Supplement (V.) V. 1. No. 1.

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No. 3. DARMSTADT AND NEW YORK. Feb. 21, 1888.

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Erythrophleine Hydrochlorate (Merck).—**A New Local Anesthetic** (according to Dr. L. LEWIN).

Erythrophleine is the Alkaloid of Erythrophleum-bark (Sassy-bark), from *Erythrophleum Guineense Don*,—*Erythrophleum Judiciale Procter*.—The tree belongs to the family of *Leguminosæ* and *Cæsalpiniaceæ*, and is indigenous to the west coast of Africa, Senegambia, Sierra Leone, etc.

Erythrophleine has been produced in my Laboratories since some considerable time, and is supplied by me to the Trade generally since 1881, in form of the easily soluble Hydrochlorate.

The experiments, as carried out with my Hydrochlorate of Erythrophleine, by Drs. HARNACK and ZABROCKI, concerning its physiological properties, show a *decided action on the heart* (similar to that of Digitalis); but at the same time it has a spasmodic effect; it produces convulsions such as Picrotoxine would do, and this has so far forbidden its internal use. *More important*, however, *than these discoveries, has proved* **a third effect, peculiar to this drug,**

for the discovery of which we are indebted to Dr. Lewin, Lecturer at the University of Berlin, who has experimented with my Erythrophleine Hydrochlorate and has elicited for it much admiration in the medical world.

According to him, Erythrophleine Hydrochlorate Merck possesses

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similar to those of Cocaine, and though anesthesis would ensue some 15–20 minutes later than is the case with Cocaine, it will be **much more intense**, *lasting up to 2 days.*

Dr. Lewin has experimented with my Hydrochlorate of Erythrophleine (Solutions of 0.25, of 0.1 and 0.05) on rabbits, dogs, cats, etc., and has obtained a long-lasting and thorough anesthesis of the cornea, conjunctiva, etc., *without altering the size of the pupils.*

Three drops of a 0.1-% solution introduced into the eye have been sufficient to produce a complete effect; the same strength of solution, injected subcutaneously, has brought about thorough anesthesis, admitting of extensive manipulations on and near the spot of injection.

It appears to be impracticable to use stronger solutions than the one indicated (0.1 %); as otherwise irritations would invariably result.

Solutions should not be kept in stock, but always prepared afresh.

There is no doubt that this preparation will prove a highly valuable and permanent addition to our Materia Medica. Such a valuable drug deserves to be universally tested, and details regarding its therapeutic effects may be expected ere long.

Urethan (*Ethylo-Urethan*), **chem. pure, (Merck):**

It has been known for some time that this compound is an *excellent Hypnotic*, causing *absolutely no after-effects* or symptoms of intolerance. In doses of 1–2 grammes the hypnotic effect **never fails,** even in the insomnia of consumptives. The sleep induced by it bears entirely *the character of natural sleep.* Prof. Dr. von Jaksch in Vienna demonstrated and published these facts as long as two years ago.—Some authorities, however, employ as high as 3–4 grammes.

But what has been more recently developed by experience (although even then recommended in theory by Dr. von Jaksch), is *the most highly valuable*, **indeed quite unique**, *usefulness of Ethylo-Urethan in*

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Prof. Dr. Demme in Berne (Switzerland) made a series of comprehensive experiments with it in the Jenner Hospital for Children. His report says:

"As a simple Sedative, it was given to children from 1 to 3 years old in single doses of 0.1 0.3, and daily dose of 0.5—1 gramme, according to age.

"For producing the real Hypnotic effect, the smallest dose for the ages of 12—18 mos. was 0.25; for ages 2—3 years, 0.5 gramme. For older children the hypnotic dose was 1 gramme; at 10—14 years even 1.5—2.0—2.5 grammes.

"The Urethan was mostly administered in 20—30 grammes of Water, with the addition of as much Sugar as the degree of sensitiveness of the patient's taste seemed to need.

"*It was throughout well borne, and, with but few exceptions, had the desired effect.*

"*In view of the innocuousness of this Urethan*, it is likewise *very eligible in Infantile Eclampsy*. Doses of 0.15—0.30 gramme, in a few spoonfuls of sugared Water, will in children of 3—10 months delay the recurrence of the convulsions after the first 30—60 minutes, and, by repetition, prevent their recurrence thereafter.—Similar results have also been obtained *by enema*,—0.1 gramme to 10 grammes of Water,—repeated several times in quick succession."

Strophanthus (Tincture), the New Heart Remedy (see my Bulletin No. 1), *in its lately discovered character* of a

CHOLERA SPECIFIC.

According to a report published in the *Indian Medical Gazette* at Calcutta (Oct. '87), Dr. Sanders presented to the Calcutta Medical Society an abstract of 17 cases of Asiatic Cholera successfully treated by him with *Tinctura Strophanthi*, in the Mago Hospital. The abstract gives the following symptomatic outline:

"Quick recovery from the stage of collapse; a gradual and slow rise of temperature; quick return of the pulse at the wrist; quick stoppage of the vomit;—the return of normal urination,—were so remarkable that

Dr. Jones, who at first was very skeptical, became fully convinced of the efficacy of the remedy," etc., etc.

"Adults were given repeated doses of 10 drops each. Children of 2½ years were given 3 drops. A boy of 8 got 4 drops. In one case of profound collapse, the dosing was continued for four hours at the rate of one drop every five minutes, and then at the rate of a drop every ten minutes; no other application whatever was used; the recovery was complete."

The Phtalates.—New Alkaloidal Salts. – *Of Permanent Character, and Freely Soluble in Water.* —Important especially for Hypodermic Use.

As may be known to most medical men, a new organic salt of Morphine—the Phtalate—was introduced a short time ago, to replace the Muriate, Sulphate and many other Morphine salts, to which various practical objections had been evolved in the course of their therapeutical exhibition.

The rapid and signal success achieved by this preparation has induced me, on similar grounds, to prepare combinations of some others of the favorite Alkaloids with Phtalic acid, so that now I am ready to supply the Trade not only with

Morphinæ phtalas (*Morphine Phtalate*),

but likewise with

Cocainæ phtalas (*Cocaine Phtalate*), and
Caffeinæ phtalas (*Caffeine Phtalate*);

the latter two being

ENTIRELY NEW PREPARATIONS,

never before offered in this market.

(A *Phtalate of Strychnine* can, however, not be made.)

The eminent points of superiority which have been found to distinguish *Morphium* Phtalate from the older Morphia salts are very likely to be found also distinctive characteristics of the above-named new Phtalates; viz., of *Cocaine Phtalate* and of *Caffeine Phtalate.*

These points of superiority are evinced principally in two directions:

1) **Permanency**
2) **Solubility**

} of the Phtalates, as against the older salts.

Combinations of Organic Bases with Mineral Acids (as in the case of Morphia Hydrochlorate and Sulphate, for instance) are liable to suffer from a tendency toward decomposition in various ways. They are prone to show slightly acid reactions after being kept in solution some time, though originally produced as neutral salts; they are furthermore apt to undergo organic decomposition through the growth of certain fungi in their solutions, etc. From these drawbacks the Phtalates are reported to be free.

But the property of the Phtalate salts most valuable to the medical practitioner, as compared with the salts of other, and especially of Mineral acids, is their far higher degree of *Solubility in Cold Water*. Morphia Hydrochlorate, for instance, is soluble in 25 parts of water; Morphia Sulphate in 14.5 parts; and Morphia Phtalate in about 5 parts. Moreover, any surplus of this salt in proportion to the menstruum *does not crystallize* from the solution, but is deposited at the bottom of the vessel in form of an oily liquid, thus separating at once and wholly from the concentrated solution; while in the case of crystallizing salts small crystals are liable to remain suspended in the liquid. The value of such peculiar properties of the Phtalates, especially for Hypodermic exhibition, is too apparent to need comment.

Morph. Phtalic. comes in beautiful, transparent, glassy **Scales**; thus affording a ready means of distinguishing it at a glance from the more innocent salts (of Quinine, etc.), with which fatal confusions have sometimes occurred in the case of the Muriates, Sulphates, and others.

Cocainum Phtalicum (C_{17} H_{21} N O_4. C_8 H_6 O_4) is a colorless viscid fluid, very readily soluble in Water and in Alcohol. The solutions show an acid reaction.

Caffeinum Phtalicum (C_8 H_{10} N_4 O_2. C_8 H_6 O_4. H_2 O) is a white amorphous solid, of soft, friable consistency; it is easily soluble in 5 parts of Water, also in hot Alcohol. The solutions have an acid reaction.

These salts will be put on the market at living prices, and I trust that the therapeutic experiments, which, no doubt, will soon be made with the interesting new compounds, may demonstrate a special field of usefulness for them, as has already been done in the matter of Morphia Phtalate.

Merck's Absolutely Pure Chromic Acid,—*wholly free from Sulphuric Acid.*—This is now prepared in two forms—crystals and *sticks*. The eminent value of this preparation of unequaled purity may appear from the fact that all the so-called "medicinally pure" makes of Chromic Acid in the market contain Sulphuric Acid enough to make them easily deliquescent (in some cases as high as 7 per cent.). This circumstance renders all such grades of "Chromic Acid" *wholly inapplicable*, in the efficient solid form, as a *Caustic in the Uterus, Trachea, Larynx, the posterior portion of the Pharynx*, etc., where the adjacent healthy parts cannot be protected from the corrosive action of the deliquescent salt.—My *Acidum Chromicum puriss.*

DOES NOT DELIQUESCE

in the course of the operation; and a salt possessing this qualification is the only grade adapted for the surgical uses described.—A 10-per-cent solution of my Absolutely Pure Chromic Acid in Hydrochloric Acid is not rendered turbid by the addition of a Baryum Chloride solution,—a most conclusive test!

Cocaine Muriate—(Merck):

By a newly discovered process of mine, the preparation of this salt has now been so much improved that its grade of purity and permanence are unattained by any other make of Cocaine Muriate I have been able to obtain for comparison. This new make of mine bears in absolute perfection the severest tests hitherto devised, for freedom from organic impurities, and for exact constitution in accordance with its formula.

Among these tests are: the one recommended by Prof. MACLAGAN, through Ammonia; and the *intensified* Permanganate test, which is executed as follows:

0.1 gramme Cocaine Muriate; dissolve in 5 cubic centimeters Water; add 2 drops dilute Sulphuric Acid; then add 1 drop Potassa Permanganate solution of 1:100.

My Cocaine Hydrochlorate, tested in solution as above, remains of a beautiful purplish-blue color *for an hour*; while other makes sometimes discolor instantly, or in less than a minute!

Chloral Hydrocyanate, cryst.—(Nitrile of Tri-Chloro-Lactic Acid). —White translucent rhombic prisms; soluble in Water, Alcohol or Éther; melting between 61 and 65° C; wholly volatilizable. — Odor of Hydrocyanic Acid and Chloral.

Excellent substitute for Bitter-Almond and Cherry-Laurel Waters, both of which, on keeping, always deteriorate in substance and effect. —Chloral Hydrocyanate, on the contrary, is a *highly stable* compound; even *the aqueous solution keeps* for a length of time.

Therapeutic effect, same as of Hydrocyanic (Prussic) acid. Dose determinable from the following figures :—6.46 parts, by weight, of Chloral Hydrocyanate correspond to *one* of Anhydrous Hydrocyanic Acid; a solution of 0.065 g of the salt in 10 g of Distilled Water corresponds to the officinal Bitter-almond Water of the German Pharmacopœia, which is 1: 1000.

Amylen Hydrate, pure medicinal.—(A tertiary Amylic Alcohol : Di-methylo-ethylo-Carbinol.)—Boiling-point, 100° C; Specific gravity, 0.81.

A highly eligible Hypnotic, of reliable efficiency, and *hardly any effect on the heart-movement.*

Dose for adults, 3–5 grammes. Administration, internal or by enema.

Cedrine.—Bitter principle from the seed of *Simaba Cedron Planch.* (Simarubeæ.)

Faintly yellowish, transparent crystals; easily soluble in Water, less so in Alcohol. Wholly volatilizable.—*Highly toxical!*

The Cedron seeds are highly valued in their native countries (New Granada, Columbia, etc.) as a remedy against *serpent-bites.* They are likewise used in Yellow fever, Intermittent fever, and Digestive troubles. —Vaillant has successfully used them in *Hydrophobia.*

Ephedrine Hydrochlorate, cryst.—Alkaloid from *Ephedra vulgaris, var. helvetica.*

Colorless needles; soluble in 4 parts Water; easily soluble in Alcohol.—*Acts mydriatically!*

Iodine Tri-chloride.—**Antiseptic and Disinfectant.**—*Highly efficient* as such, through the liberation of Chlorine, whose nascent energetic effect is still further enhanced by the presence of the Iodine.

An orange-red powder, whose odor strongly irritates the mucous membranes, and which should therefore be kept for exhibition in (frequently renewed) solution.—Usual dilution: 1: 1200.

Phen-acetine.—(Para-Acet-phenetidine.)—**A new Anti-pyretic.**—Colorless, inodorous, insipid crystals; slowly soluble in Water, readily so in Alcohol.—Melting-point, 132.5° C.—Single dose: 0.5—0.6—0.7 gramme.

Condurangine.—Glucoside from **Condurango-bark.**—*Gonolobus cundurango* (Mata-perro).—Used in *Gastric diseases, Cancer*, etc.—Amorphous powder; soluble in Water, Alcohol or Chloroform.

Vieirine.—**Febrifuge**,—highly valued as such in the Brazils,—from the bark of *Remijia vellozii D. C.* (Cuprea-bark.)

Sapotoxine.—A Colloid substance.—Fractional derivative of **Saponine**, *according to Kobert's formula.*—The toxic principle of Quillaia-bark.—White, amorphous powder; readily soluble in Water or Alcohol.

Phloridzine.—Glucoside from the root-bark of the Apple or Pear-tree.—Also, its fractional derivative **Phloretine** (*Phloretic Acid*):—fine crystalline scales; hardly soluble in Water, readily so in Alcohol or Ether.

E. MERCK,

Manufacturing Chemist to the Medical Profession.

DARMSTADT. ✝ NEW YORK. ✝ LONDON.

73 WILLIAM STREET.

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It has been known for some time that this compound is an *excellent Hypnotic, causing absolutely no after-effects* or symptoms of intolerance. In doses of 15–30 grains the hypnotic effect **never fails,** even in the insomnia of consumptives. The sleep induced by it bears entirely *the character of natural sleep.* Prof. Dr. von Jaksch in Vienna demonstrated and published these facts as long as two years ago.—Some authorities, however, employ as high as 45–60 grains.

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"As a simple Sedative, it was given to children from 1 to 3 years old in single doses of 1½—5 grains, and daily dose of 7—15 grains, according to age.

"For producing the real Hypnotic effect, the smallest dose for the ages of 12–18 mos. was 4 grains; for ages 2–3 years, 7 grains. For older children the hypnotic dose was 15 grains; at 10—14 years even 20—30—37 grains.

"The Urethane was mostly administered in 5 to 8 drams of Water, with the addition of as much Sugar as the degree of sensitiveness of the patient's taste seemed to need.

"*It was throughout well borne, and, with but few exceptions, had the desired effect.*

"*In view of the innocuousness of this Urethane*, it is likewise *very eligible in Infantile Eclampsy*. Doses of 2—4½ grains, in a few spoonfuls of sugared Water, will in children of 3—10 months delay the recurrence of the convulsions after the first 30–60 minutes, and, by repetition, prevent their recurrence thereafter.—Similar results have also been obtained *by enema*,—1½ grains in 160 minims of Water,—repeated several times in quick succession."

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} of the Phtalates, as against the older salts.

Combinations of Organic Bases with Mineral Acids (as in the case of Morphia Hydrochlorate and Sulphate, for instance) are liable to suffer from a tendency toward decomposition in various ways. They are prone to show slightly acid reactions after being kept in solution some time, though originally produced as neutral salts; they are furthermore apt to undergo organic decomposition through the growth of certain fungi in their solutions, etc. From these drawbacks the Phtalates are reported to be free.

But the property of the Phtalate salts most valuable to the medical practitioner, as compared with the salts of other, and especially of Mineral Acids, is their far higher degree of *Solubility in Cold Water.* Morphia Hydrochlorate, for instance, is soluble in 25 parts of water; Morphia Sulphate in 14.5 parts; and Morphia Phtalate in about 5 parts. Moreover, any surplus of this salt in proportion to the menstruum *does not crystallize* from the solution, but is deposited at the bottom of the vessel in form of an oily liquid, thus separating at once and wholly from the concentrated solution; while in the case of crystallizing salts small crystals are liable to remain suspended in the liquid. The value of such peculiar properties of the Phtalates, especially for Hypodermic exhibition, is too apparent to need comment.

Morph. Phtalic. comes in beautiful, transparent, glassy **Scales;** thus affording a ready means of distinguishing it at a glance from the more innocent salts (of Quinine, etc.), with which fatal confusion have sometimes occured in the case of the Muriates, Sulphates, and others.

Cocainum Phtalicum ($C_{17}\,H_{21}\,NO_4.\ C_8\,H_6\,O_4$) is a colorless viscid fluid, very readily soluble in Water and in Alcohol. The solutions show an acid reaction.

Caffeinum Phtalicum ($C_8\,H_{10}\,N_4\,O_2.\ C_8\,H_6\,O_4.\ H_2\,O$) is a white amorphous solid, of soft, friable consistency; it is easily soluble in 5 parts of Water, also in hot Alcohol. The solutions have an acid reaction.

These salts will be put on the market at living prices, and I trust that the therapeutic experiments, which, no doubt, will soon be made with the interesting new compounds, may demonstrate a special field of usefulness for them, as has already been done in the matter of Morphia Phtalate.

Merck's Absolutely Pure Chromic Acid,—*wholly free from Sulphuric Acid.*—This is now prepared in two forms,—crystals and *sticks*. The eminent value of this preparation of unequaled purity may appear from the fact that all the so-called "medicinally pure" makes of Chromic Acid in the market contain Sulphuric Acid enough to make them easily deliquescent (in some cases as high as 7 per cent.). This circumstance renders all such grades of "Chromic Acid" *wholly inapplicable*, in the efficient solid form, as a *Caustic in the Uterus, Trachea, Larynx, the posterior portion of the Pharynx*, etc., where the adjacent healthy parts cannot be protected from the corrosive action of the deliquescent salt.—The *Acidum Chromicum puriss. Merck*

DOES NOT DELIQUESCE

in the course of the operation; and a salt possessing this qualification is the only grade adapted for the surgical uses described.—A 10-per-cent. solution of this Absolutely Pure Chromic Acid in Hydrochloric Acid is not rendered turbid by the addition of a Barium Chloride solution,—a most conclusive test!

Cocaine Muriate—(Merck):

By a newly discovered process of mine, the preparation of this salt has now been so much improved that its grade of purity and permanence are unattained by any other make of Cocaine Muriate I have been able to obtain for comparison. This new make of Cocaine Muriate bears in absolute perfection the severest tests hitherto devised, for freedom from organic impurities, and for exact constitution in accordance with its formula.

Among these tests are: the one recommended by Prof. MACLAGAN,—through Ammonia; and the *intensified* Permanganate test, which is executed as follows:

> 1½ grains Cocaine Muriate; dissolve in 80 minims Water; add 2 drops dilute Sulphuric Acid; then add one drop Potassa Permanganate solution of 1:100.

Cocaine Hydrochlorate Merck, tested in solution as above, remains of a beautiful purplish-blue color *for an hour*, while other kinds sometimes discolor instantly, or in less than a minute!

Chloral Hydrocyanate, cryst.—(Nitrile of Tri-Chloro-Lactic Acid.)—White translucent rhombic prisms; soluble in Water, Alcohol, or Ether; melting between 140 and 149° F; wholly volatilizable.—Odor of Hydrocyanic Acid and Chloral.

Excellent substitute for Bitter-Almond and Cherry-Laurel Waters, both of which, on keeping, always deteriorate in substance and effect.—Chloral Hydrocyanate, on the contrary, is a *highly stable* compound; even *the aqueous solution keeps* for a length of time.

Therapeutic effect, same as of Hydrocyanic (Prussic) acid. Dose determinable from the following figures:—6.46 parts, by weight, of Chloral Hydrocyanate correspond to *one* of Anhydrous Hydrocyanic Acid; a solution of 1 grain of the salt in 160 minims of Distilled Water corresponds to the officinal Bitter-almond Water of the German Pharmacopœia, which is 1:1000.

Amylene Hydrate, pure medicinal.—(Tertiary Amylic Alcohol: Di-methylo-ethylo-Carbinol.)—Boiling-point, 212° F; Specific gravity, 0.81.

A highly eligible Hypnotic, of reliable efficiency, and *hardly any effect on the heart-movement.*

Dose for adults, 45–75 grains. Administration, internal or by enema.

Cedrin.—**Bitter principle** from the seed of *Simaba Cedron Planch.* (Simarubeæ).

Faintly yellowish, transparent crystals; easily soluble in Water, less so in Alcohol. Wholly volatilizable.—*Highly toxical!*

The Cedron seeds are highly valued in their native countries (New Granada, Colombia, etc.) as a remedy against *serpent-bites*. They are likewise used in Yellow fever, Intermittent fever, and Digestive troubles. —Vaillant has successfully used them in *Hydrophobia*.

Ephedrine Hydrochlorate, cryst.—Alkaloid-salt from *Ephedra vulgaris, var. helvetica.*

Colorless needles; soluble in 4 parts Water; easily soluble in Alcohol.—*Acts mydriatically!*

Iodine Tri-chloride.—**Antiseptic and Disinfectant.**—*Highly efficient* as such, through the liberation of Chlorine, whose nascent energetic effect is still further enhanced by the presence of the Iodine.

An orange-red powder, whose odor strongly irritates the mucous membrane, and which should therefore be kept for exhibition in (frequently renewed) solution.—Usual dilution: 1:1200.

Phen-acetin.—(Para-Acet-phenetidin.)—**A new Antipyretic.**—Colorless, inodorous, insipid crystals; slowly soluble in Water, readily so in Alcohol.—Melting-point, 270.5° F.—Single dose 7—9—11 grains.

Condurangin.—Glucoside from **Condurango-bark.**—*Gonolobus cundurango* (Mata-perro).—Used in *Gastric diseases, Cancer*, etc.—Amorphous powder; soluble in Water, Alcohol or Chloroform.

Vieirin.—**Febrifuge,**—highly valued as such in the Brazils,—from the bark of *Remijia vellozii D. C.* (Cuprea-bark).

Sapotoxin.—A Colloid substance.—Fractional derivative of **Saponin,** *according to Kobert's formula.*—The toxic principle of Quillaia-bark.—White, amorphous powder; readily soluble in Water or Alcohol.

Phlorizin.—Glucoside from the root-bark of the Apple- or Pear-tree.—Also, its fractional derivative **Phloretin** *(Phloretic Acid)*:—fine crystalline scales; hardly soluble in Water, readily so in Alcohol or Ether.

E. MERCK.

MERCK'S BULLETIN

A Periodical Record of New Discoveries, Introductions, or Applications of Medicinal Chemicals.

Moved by Professional — not Business — Interest.

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Acid, Oxy-naphthoic, Alpha-.—Anti-Zymotic, Disinfectant, and **Anti-Phylloxerin.**—White, inodorous, microcrystalline powder; soluble in 30,000 parts of cold Water; more readily soluble in aqueous solutions of Bi-carbonates, or of Ammonia, which then enter into combination with this acid. More easily soluble in Alcohol, Chloroform, Benzol, and Oils—both fixed and volatile.

Its *Anti-zymotic action* is said to *exceed that of Salicylic Acid* as 5 : 1.

Alantol (C_{20} H_{32} O),—a *Liquid Stearopten* (Camphor), found beside Helenin (the solid Alant-camphor or Inula-camphor) in the root of *Inula Helenium* (Elecampane).—The boiling-point of Alantol is near 200° C.—**Powerful Internal Anti-Bacterial** and **Antiseptic.**

The therapeutic uses of Alantol are similar to those of *Helenin*, in diseases of the *Air-passages* and in *Bronchio-pneumonia*, also in *Tuberculosis.*

Its action is reported to be materially *more energetic* than that of *Helenin.*—The dose is assumed to be the same; that is: 0.01 gramme, about 10 times daily, in pills, powders or alcoholic draughts.—Fuller reports are expected.

Amyl Phenate (*Amyl-Phenol*), **cryst.**—(C_6 H_4. OH. C_5 H_{11}.)—**A new Hypnotic**—Small white crystals; easily soluble in Ether and in Alcohol, insoluble in Water.—Melting-point, 90–95° C; boiling-point, about 240° C.

Anthrarobin.—Innocuous Succedaneum for Chrysarobin.—A derivative from Alizarin or from Purpurin.—Yellowish to fawn-colored powder; insoluble in Water, but soluble in dilute aqueous Alkaline solutions.

The *inflammatory irritation-symptoms* accessory to the use of *Chrysarobin* (the so-called "Medicinal Chrysophanic Acid"), and which render its action so highly disagreeable and often dangerous, are said *not to be entailed* by Anthrarobin, even after many months' use.—Corresponding hereto, however, stands *a slower and more gradual remedial action* on the part of the new preparation. Very favorable results are, nevertheless, reported of it.

Atropine Sulphate Merck, white, cryst.;—**perfectly neutral.**—This particular make of Atropine Sulphate possesses *the rare quality*, so highly desirable for Medical use, of being **Absolutely Neutral, even in most concentrated solution.** There are other makes that show neutral reaction in *weak* solutions; but an Atropine Sulphate that will show *no trace of either Acid or Alkaline reaction* when tested in the *most concentrated* form is the only grade to which the qualification of being **"Medicinally Pure"** can justly be ascribed.

The test of a soluble salt for "Perfect Absence of both Acid and Alkaline reaction in most concentrated solution" is *most conclusively* made by strewing a small pinch of the *dry salt* on Test-paper which has previously been moistened with Water.—Atropine Sulphate Merck bears this test.

Bismuth Albuminate.—Light, whitish powder.—Used with success in *Gastric and Intestinal Spasms.*

Brom-phenyl-acet-amide, Mono-, ($C_6 H_4$ Br. N H. $C_2 H_3$ O).—It is supposed to combine the **Sedative** effects of *Sodium Bromide* and the **Antifebrile** ones of *Phenyl-acet-amide*, which two remedies have heretofore often been given in combination with good effect.—It has first been prepared by Cheyne (England).

Bursa pastoris (*Capsella B. p.*), [Shepherd's Purse].—**Most efficacious Hemostatic.**—This plant, after enjoying high recognition from the Medical Profession during the 15th, 16th and 17th centuries, gradually fell into officinal disuse during the 18th,—continuing meanwhile, however, in uninterrupted favor as a popular remedy in the families of the country folk. A few years ago, Dr. von Ehrenwall, of Ahrweiler, Germany, during his country practice, noticed the excellent styptic properties of Bursa in a case of *Menorrhagia* that had resisted all other medication. Dr. v. E.'s experiments, since instituted, have demonstrated to his satisfaction that the *dry herb* is devoid of virtue, (which probably was the cause of its previous discontinuance in the pharmacies); but that the juice of the fresh herb is, beyond comparison, **the most reliable Styptic known** to the Materia Medica,—not even excepting *Ergot.*

Since then, the Fluid Extract has been used (internally) in *Hemorrhages of the Lungs, Chronic Hemorrhage of the Kidneys*, and in such *Uterine Hemorrhages* as justified the use of internal remedies.—The dose was of 3–4 tablespoonfuls per day, in a little Water.

Meanwhile, **Bursic Acid** has been isolated from the herb by the pharmacist BOMBELON, and clinical experiments, *per os* and *subcutaneously*, with this acid and its Alkali-salts are now in progress, in order fully to determine its efficacy and administration.

Caffeine Cinnamate.—White, fine powder; readily soluble in Water and in Diluted Alcohol; aromatic odor.—*Use similar* to that of the *Caffeine salts* generally.—Whether it be a *true salt*, has not yet been satisfactorily determined.

Caffeine Hydrobromate Merck, cryst.—**A true Salt,**—that is, a definite, reliable, constantly uniform *chemical combination*,—NOT a *physical mixture* of dangerously varying composition (such as has been often given for true Hydrobromate).

Caffeine and **Soda, Citrate.—A new true double salt,** containing 52.5 % of Caffeine.

Cannabine, Pure Alkaloid.—Innocuous Hypnotic!—(This wholly new preparation is *not to be confounded with the Resinoid* hitherto known as *"Cannabin"!*)

The PURE ALKALOID CANNABINE is a brown liquid of syrupy consistency, which, in thin layers, is quite clear and transparent. It has the pronounced characteristic odor of Hemp.

The effect of the PURE ALKALOID CANNABINE is *purely Hypnotic*, and *free from all deleterious accessory symptoms.*

Doses of 0.1–0.3 gramme are employed.

Cocaine Phenate (*Carbolate*).—Colorless mass, of soft-extract consistency; easily liquefiable by heat. Very readily soluble in Alcohol. Faint odor, resembling that of Phenol (Carbolic Acid).

Used externally, to produce *Local Anesthesia!*

Creolin,—from Coal-tar.—A **non-toxic Deodorizer, Disinfectant, Anti-Bacterial,** and **Antiseptic,** claimed *to exceed Phenol* (Carbolic Acid) in deodorizing efficiency, while being *absolutely safe!*—Prof. Dr. FRÖHNER, of the

Royal Veterinary College at Berlin, pronounces it *much preferable* to the following well-reputed agents :

"Carbolic Acid, Creasote, Bismuth Subnitrate, Iodine Tincture, Naphthalene."

Dr. E. von Esmarch, of the Royal Hygienic Institute at Berlin, finds its *Deodorizing power* of supreme efficacy (beyond comparison with Carbolic Acid) ; and its *Anti-bacteric*, or *Bactericidal*, power, demonstrated in the form of Creolin-Soap, as

"Decidedly *superior to that of the Corrosive-Sublimate* Soap prepared by the Royal Pharmacological Institute."

—In *Diphtheria* and in *Whooping-cough*, remarkable success has been ascribed to the applications of Creolin by Spray Inhalation and by Gargle.

Creolin-Mollin (*see* "Creolin," *above ; and* "Mollin," *in Special Circular*). — A superior, **Non-toxic Gynecological Lubricant,** and **Disinfecting Detergent** for Obstetricians' hands, instruments, etc.

According to Prof. Dr. Esmarch and other surgical authorities, a 1-% preparation of Creolin possesses *equal disinfectant power* with a 1/10-% solution of Corrosive Sublimate.—Creolin-Mollin, being *non-toxic* and *non-irritant*, is, therefore, for many uses,—and especially so in Gynecology and Obstetrics, —decidedly preferable to the poisonous Sublimate solutions.

Ephedrine Hydrochlorate, cryst., (*see former* Bulletin !) is favorably reported-on by Dr. Scriba (of Tokio, Japan) in regard to its Ophthalmological usefulness as a Mydriatic. — Promises to command great interest.—Dose not yet known.

Ethyl Bromide Merck, chemically pure, (*Hydrobromic Ether*). —A "revived" **Anesthetic.** Especially adapted **for small operations.** — A colorless liquid, of agreeable odor ; boiling at about 39° C.—*Not* readily inflammable.

Ethyl Bromide has had a peculiar history. It was originally received (about 30 years ago), especially in France and in the United States, with high favor and marked hopes of its supplanting all other Anesthetics ; but in the course of time it dropped into desuetude, principally in consequence of disagreeable, and even fatal, *peculiar toxic effects* having several times been remarked as following its administration. It appears, however, from later researches (f. i., Dr. J. Asch, Berlin : *Therapeutische Monatshefte*, Feb. 1887), that those

deleterious effects were *unjustly ascribed to the* PURE BROMIDE OF ETHYL,—having been due to impurities derived from the ancient method of preparing it by the PHOSPHORUS-ALCOHOL-BROMINE PROCESS, which had been in vogue almost since its discovery, and which is still in use for the Hydrobromic Ether intended for serving merely in the Technical Arts. — LANGGAARD and TRAUB have clearly traced the dangerous toxic properties of the "Ethyl Bromide" *thus prepared* to certain Sulphur and Arsenic combinations derived from the crude, impure Phosphorus employed in that process.

THE MODERN PROCESS, consisting essentially of a reaction between ETHYLO-SULPHURIC ACID and POTASSIUM BROMIDE, wholly obviates the objectionable features above described, and furnishes, when properly completed, a **chemically pure Bromide of Ethyl,** *which alone is fit for Medicinal use.*—The *Odor* of Pure Ethyl Bromide, which should be of a *pleasant, sweetish, Chloroform-like* character, is of itself a sufficient indication for rejecting all those preparations which have a pungent or repulsive smell, and which thereby show their impure composition.

PURE ETHYL BROMIDE is an agent **of eminent value to the Surgeon** in small operations; for it there *does fully the service* which would be done by *Chloroform* (provided, Anesthesia not exceeding 15 minutes' duration be required), **without any of the risks** always attached, more or less, to the use of Chloroform, —*no observation of the Heart's action* by a second attending physician being needed in the case of Ethyl Bromide.

Anesthesia by ETHYL BROMIDE is of a shallower character than that by Chloroform,—generally *leaving both consciousness and muscular tension unimpaired,* and reaching its zenith within about one minute, so that repeated administration is necessary in order to make it continue for several minutes. But the *inability to perceive pain* is nevertheless *fully secured* during the period of its action.

Recovery from this Anesthesia is very easy, and attended with hardly any nausea or dizziness,—the Ethyl Bromide being *rapidly eliminated,* principally through the lungs.

Administration by mask, as with Chloroform: from 5 to 30 grammes per operation, according to duration required.

The **Chemically Pure Ethyl Bromide Merck** has been used in vast numbers of Surgical operations of short duration, without ever failing, and without deleterious results being reported in any instance.

It is also administered in *Parturition,* in *Epilepsy,* and in *Hysteria.*

—Internal dose: 5–10 drops, on sugar or in capsules.

Guaiacol, chemically pure, (*Mono-methyl-Catechol*).—THIS GRADE of Guaiacol is a new preparation, especially manufactured *for Medicinal use!*

SAHLI prescribes the following:

Guaiacol, chem. pure, 1 to 2 grammes; Dist. Water 180 do.; Alcohol 20 do.; - to be put-up in dark glass;—tea- to table-spoonful in a tumbler of Water, 2 to 3 times daily, after meals.

Hydrastine Nitrate, cryst.—Yellow, crystalline granules; easily soluble in Water and in Alcohol. Melting-point, 120° C.

Hydro-Berberine.—Faintly yellowish crystals, easily soluble in Alcohol.—Principally used in *Malarial* fevers, *Gastric* disturbances, and *Milt* tumors.

Iodoform Powder (medium), non-conglutinative! - This peculiar form of Iodoform Powder, which *will not cohere or conglutinate* into lumps or balls, has *recently* been introduced as a "novelty" by others.—I have, however, for many years previous furnished it,—so, for instance, to the Surgical Clinique of Heidelberg University.

Iodole (*Tetra-iodo-pyrrole* — C_4I_4NH). — Light-yellowish-gray, fine and specifically light powder; easily triturable between the fingers (similarly to Talcum venetum, and similarly adherent to the epidermis). Soluble in about 5000 parts Water (a little more readily in Alkalized Water); or in three parts, by weight, of Alcohol, in which solution Water produces a finely subdivided, milky precipitation. (Glycerin does not cause such precipitation.)—The alcoholic solution must be prepared carefully with regard to temperature; for at the boiling-point of Alcohol it begins to decompose the Iodole.—Soluble, also in about its weight of Ether; and in 15 parts of fatty oils.—*Dry* IODOLE (not in solution) bears the temperature of boiling Water without change; at 140-150° C, it decomposes.—It is *tasteless and inodorous!*

IODOLE, containing, as it does, *nearly 89 per cent. of Iodine*, is, next to Iodoform, the strongest Iodine preparation extant; it about equals IODOFORM in **Antiseptic** power, but is *preferable* thereto in view of its **Absence of Odor and of Toxic properties.**

Application—*externally*—in a great variety of *Carcinomatous* and other *Morbid Tissue Degenerations*, and *Traumatic*, *Septic*, *Purulent* and *Catarrhal Processes* (especially in those of a Venereal character), as a desirable **General Succedaneum for Iodoform,** either in substance as a Skin-powder, or as

a lotion in Alcoholic or Ethereal solution, or with Collodion or Traumaticin, or as an ointment with fatty vehicles or MOLLIN, or in Plasters, or in Gauze.

IODOLE SOLUTION (according to MAZZONI): — Iodole 1 part by weight; Alcohol 16; Glycerin 34;—dissolve.

IODOLE GAUZE (for *Antiseptic Dressing*):—Iodole 1; Resin (Colophonium) 1; Glycerin 1; Alcohol 10;—impregnate Sterilized Gauze with this solution.

IODOLE COLLODION:—Iodole 10; 94-% Alcohol 16; Ether 64; Pyroxylin 4; Castor-oil 6.

—*Internally*, Iodole has also been given similarly to Iodoform, in 2-grain doses, *without accessory effects*.

Lamine Sulphate.—From *Lamium album*, (Dead Nettle; Blind Nettle), the flowers of which have long been in popular use in Central Europe as a **Hemostatic**, DUJARDIN-BEAUMETZ has extracted an **Alkaloid**,—LAMINE,—in the form of a Sulphate, which, according to him, has proved to be possessed of *powerful Hemostatic virtues* in *subcutaneous* application.

Magnesium Salicylate, cryst.—Colorless needles; easily soluble in Water and in Alcohol.

Used in *Typhoid* fever and *Typhus*, **instead of Bismuth Salicylate**; preferred to the latter on account of its acting less styptically.—3–6 grammes per day are said to be borne without disagreeable accessory results.

Manganese Silicate (Bi-silicate).—Yellowish, amorphous powder; turning brown on exposure.—Soluble in dilute Acids.

(Used in the composition of *Enamels*.)

Mercury Citrate.—Heavy white, amorphous powder; wholly insoluble in Water and in Alcohol, even under the influence of heat.

Mercury Cynocardate.—Yellowish-white mass, of the consistency of a strongly inspissated extract. Solubilities like Zinc Cynocardate (*which see* in present BULLETIN).

Used principally in *Syphilis*.

Mercury Salicylate is gaining renewed favor with some of the most eminent *Dermato-syphilidological* Cliniques of Germany, and bids fair to command increased attention from the Medical Profession generally. (A highly favorable report on it has recently been published by ARANJO).

Muira puama, Fluid Extract.—Said to be *the most powerful known* **Aphrodisiac**, reported as far exceeding DAMIANA in its action!

Neriin, and **Oleandrin.**—Two **Glucosides** found by SCHMIEDEBERG in the common *Oleander* (*Nerium O.* LINNÉ).—According to their discoverer, OLEANDRIN possesses a **Digitalin**-action, and NERIIN one similar to **Digitalein.**—Least of these active principles is found in the flower; most in the wood and bark.

A dose of 5–6 grammes of an EXTRACT from the wood and bark are stated to be lethal in man. Death takes place through *paralysis of the respiration and heart-action*, some hours after the administration.

Of OLEANDRIN, 25 milligrammes speedily cause *systolic heart-arrest* in frogs.

Ophioxyline,—(Alkaloid?),—from *Ophioxylon serpentinum* (*Apocyneæ*), a toxic plant native to India.—Prof. BETTINK, who discovered and isolated this substance, ascribes to it the formula $C_{16}\ H_{13}\ O_6$ (or: $C_{48}\ H_{39}\ O_{18}$). It forms orange crystals, easily soluble in Chloroform and in Benzene; less so in Alcohol, and but very little in Water. Melting-point, about 71.8° C.—It shows many resemblances to *Juglone;* its taste is of fiery pungency.—(Prof. B. is continuing his researches on it.)

Ormosine, cryst.—A new **Alkaloid** from the seed of *Ormosia dasycarpa* (*coccinea?*).—Small white crystals, insoluble in Water, easily soluble in Alcohol and in Chloroform. Forms crystallizable Salts with various Acids.—Melting-point, 80° C.

HARNACK credits it with an *Opium-like* **Narcotic** action. This experience is, however, contradicted by KOBERT.

Papayotin, pure.—"**Vegetable Pepsin**", from the juice of the Melon-tree (*Carica papaya*).—Used especially as a *Safe and Efficient* **Membrane-Solvent** in **Croup** and **Diphtheria.**

In quite a weakly-alkaline aqueous solution, the peptonizing force of PAPAYOTIN is generally considered to be best brought to action. It thus dissolves 200 times its weight of freshly de-serinated Blood-fibrin.

For topical application in *Membranous* CROUP and DIPHTHERIA, a 5-% solution (of MERCK's Papayotin!) in slightly alkalized Water has been commonly used. This must be applied with a brush to the pseudo-membranes at intervals of 20 or 30 minutes, *before asphyxia becomes imminent!*—Prof. Dr. A. JACOBI has, however, with eminent success, in the complaints and manner mentioned, used the following formula:—Papayotin 1; Water 1; Glycerin 4.

In the *Infiltrated* form of Diphtheria, its action is less marked; while in the *Membranous* form of this and kindred diseases, the effect is undeniably beneficial.—Rossbach of Jena and Finkler of Bonn found that the removal of the membranes as above described would reduce temperatures of 104° F, and above, to normal.—Dr. W. Keating Bauduy, Ass't Professor at the Missouri Medical College, in an elaborate communication to the *St. Louis Medical Review*, on "Papayotin in Diphtheria," says:

> "One of the favorable results of Papayotin is due to the *absence of Escharotic effects* . . . . Papayotin is a *dissolvent for all dead tissues*. When taken into the mouth, the epithelium of the mucous membrane does not undergo the slightest change; whereas, on the other hand, if there be present a *false membrane*, whatsoever its character, croupous or diphtheritic, *it is immediately attacked and dissolved.*"

Dr. Bauduy further says that he prefers "*a concentrated Paste,*"—*freshly prepared* from powdered Papayotin with very little Water and "a drop of Lactic Acid",—to the 5-% solution in (alkalized?) Water.—He also prefers the application *by brush* to the *spray*, except when, in Nasal Diphtheria, the parts are inaccessible.

—N.B.—The formulas above given apply to **Pure Papayotin only,** and not to a *Lactose trituration of it*, which sometimes is sold by names like "Papain," etc.

Potassium Cinnamate, from Pure Cinnamic Acid.—Slightly reddish, fine powder, of strongly aromatic odor. Very freely soluble in Water and in Diluted Alcohol.—Therapeutic application not yet determined.

Resorcin Dry-Spray Powder (impalpable), **chemically pure.**—(Resorcinol), [*Meta-di-oxy-benzene*].

This form of Resorcin was but recently introduced by me, to serve especially for **Dry Inhalations** in *Diphtheritic* and other affections of the Air-passages, where an *Escharotic* application in fine subdivision is desirable.

—**Resorcin Merck,** chem. pure, in its **crystallized** form, consists of delicate, brilliantly white needles—resembling snow in appearance, of very faint odor and sweetish-acrid taste. It is easily soluble in Water, Alcohol, and Ether.

Its Internal uses are similar to those of Phenol (Carbolic Acid); it is, however, *free* from the highly toxic character of Phenol. It is especially given as an *Anti-fermentative* in Gastric catarrhs, both acute and chronic.—Dose 0.2–0.5

gramme, in draughts or wafer-powders, several times per day. Maximal single dose : 3 grammes; maximal daily: 10.

EXTERNALLY, it is used as a *Topical Escharotic* in Diphtheria. Also, for Liniments (1:6) in *Skin-diseases;* for Urethral Injections (1 or 2 : 100) ; for Eye-waters ; for *Wound-treatment*, either in solution, or dry in wadding or gauze.

Saccharin (*Sulphinide of Benzoic Acid*),—a **Non-Fermentable Sweetening Substance,** *of 280 times the sweetening power of Cane-Sugar.*— A white crystalline powder, soluble in 230 parts of Water of 25° C ; easily soluble in Alcohol and Ether. It has a very faint odor of Bitter Almonds, which becomes more perceptible by heating.

This preparation is IN NO WISE RELATED to the class of SUGARS (Carbhydrates), either chemically or physiologically. It is *not only unfermentable*, but possesses even an anti-zymotic action,—*retarding*, f. i., the ammoniacal *fermentation* in urine for some considerable time. It is *indigestible, inert, and non-toxical*, when taken into the stomach ; passing out with the urine unchanged.—At the same time, it is *the sweetest substance known ;* 1 part in 70,000 of water showing a perceptible sweet taste, equal to 1 Cane-Sugar in 250 water ; and a solution of 1 in 10,000 is intensely sweet.—Its chemical reaction is that of a weak acid, and hence it is capable of forming Salts with Alkaloids.

These properties assign it a threefold place in Dietetics, Pharmacy, and Therapeutics :—

Firstly, an admixture of it to the FOOD OF DIABETIC AND OBESE PATIENTS enables them to enjoy the pleasure of tasting sweet nutriment, which ordinarily must be denied them on account of the harmful effect of Sugar in their ailments.

Secondly, it appears to be a harmless and effective SWEETENING AGENT FOR BITTER MEDICINES, especially for the Alkaloids.

Chemical combinations (TRUE SALTS), of it with several medicinal Alkaloids are therefore made, as follows:

Quinine Saccharinate,
Morphine Saccharinate,
Strychnine Saccharinate.

} (*Not to be confounded with* SACCHARATES!!!)

—Also, the corresponding BI-SACCHARINATES, which are *especially* well adapted for internal medicinal use.

Thirdly, it is given, in combination with other remedial agents, or in pure

solution, as an ANTI-FERMENTATIVE MEDICINE in various Gastric, Intestinal and Cystic disorders.

—Its *solution in* (95–96 %) *Alcohol* is effected without difficulty at the rate of 10 grammes to 1 litre.

—Its *solution in Water* is greatly facilitated by the addition of Alkalis or Alkaline Carbonates.

The following formulas are adapted hereunto:

Saccharin Syrup, (by POLLATSCHEK):—Saccharin 10 grammes; Sodium Carbonate Crystals 11 do.; Dist. Water 1000 do.—(5 grammes of the Carbonate will, however, suffice, if the aid of heat be used in making the solution.)—The above quantity of Syrup is equivalent, in sweetening power, to about 6 pounds of Sugar.

Saccharin Tablets, (by Bernh. FISCHER):—Saccharin 3 grammes; Dry Sodium Carbonate 2 do.; Mannit 50 do.;—make 100 tablets.

——**Besides the above Medicinal uses,** Saccharin appears to be employed as a SUGAR SUBSTITUTE in CONFECTIONERY and LIQUORS. One part of it to 1000 or 2000 of Glucose (Grape-sugar), is said to make an equivalent to Cane-sugar; and a ratio of 1 part Saccharin to 8000 of liquid menstruum is considered sufficient for making Sweet Liquors.

Sapotoxin (*see former* BULLETIN!).—KOBERT has published an interesting treatise on this Colloid, in which he describes it as an *extremely intensive Heart-poison.*

Silver and Ammonium, Fluoride, cryst.—White needles; easily soluble in hot Water; rather stable under the influence of Light.

(Used in *Chromo-Photography!*)

Simulo, Tincture.—First prepared by CHRISTY, of London, from the seeds of *Capparis* (*Coriaceæ*), whose fruit bears the name of "Simulo."—A report by WHITE, in the *Lancet*, describes it as an excellent **Anti-Epileptic, Anti-Hysteric,** and **Nervine Tonic,** which he gave in 7 cases of Epilepsy, and in others of Hysteria and Nervousness, with very gratifying results, and *without any disagreeable accessory effects* even after long-continued use.—His doses ran from 4 to 8 grammes per day.

Sodium Citrico-benzoate.—White, spumescent powder; very freely soluble in Water, hardly so in Alcohol.—*Uses like* those of the *Benzoates* generally, in *Bronchitis*, *Asthma*, etc.

Sodium Hydroxide, pure, in drops, is a *new form* of this substance, recently introduced by me.

Sodium Silico-fluoride.—Innocuous Surgical Antiseptic.—*Non-toxic!*—Inodorous, difficultly soluble in Water.—A saturated aqueous solution contains 0.61 %.

THOMSON considers the *Fluorides* generally as excellent Antiseptics for surgical and other purposes; of that entire class, he *particularly recommends* the SILICO-FLUORIDE OF SODIUM as possessing, among that class, the most desirable character for Efficacy; and, on account of its non-poisonousness, also for Safety!

Sodium Sulphite, Benzoated (*not* a true Sulphuroso-benzoate salt!), —according to E. HECKEL.—**Non-toxic** and **Eminently Powerful Surgical Antiseptic.**—Especially recommended by Prof. HECKEL for Wound-treatment.—*Easily soluble* in Water.—*Entirely harmless* to the human system.—(Prone to spontaneous decomposition!)

HECKEL states its *Disinfecting Power* at 10 times that of IODOFORM, and as being *fully equal to that of the* MERCURY SALTS, to which it is preferable on account of its non-poisonous character!

For Lotions or Compresses:—4–5 grammes to 1 litre of Water.

Sodium Vanadate (Bi-vanadate), **cryst.**—Orange-red, small crystals; *very readily soluble* in Water.

Sozo-Iodole (according to KEHRMANN:—*Di-iodo-phenol-sulphonate of Potassium*,—$C_6 I_2 H_3 K. S O_4 + 2$ aq.).—A *valuable* **Dermatological Antiseptic!** (according to LASSAR).

Sozo-IODOLE is a solid, soluble in about 14 parts of Water or of Glycerin at ordinary temperatures,—in a much smaller proportion of these menstrua, however, at a somewhat elevated temperature. (At 80° C, it decomposes; therefore, it must *never be heated with the menstruum;* but the latter, having been previously raised to about 50° C, should be poured on the Sozo-iodole, which then will rapidly dissolve.)

In solid form, Sozo-iodole *acts very promptly* when exhibited as an OINTMENT, or as a demulcent and bibulous SKIN-POWDER (with Talcum venetum).

Solutions and mixtures of SOZO-IODOLE *do not undergo decomposition* by the action of light or of the atmosphere.

Sparteine, pure, syrupy.—*Alkaloid* from *Sarothamnus scoparius* (Broom).—**A Narcotic!**—Strongly alkaline, dense, oily liquid; very easily susceptible to changes.—Odor similar to Aniline; taste intensely bitter.—Little soluble in Water; easily so in Alcohol, Ether, and Chloroform.—Boils at about 310° C.

Used in *Heart affections.* (*See* under "SPARTEINE HYDRIODATE," *below!*)

Sparteine Hydriodate, cryst.—Heart Remedy.—*New* Sparteine Salt!—Slender white needles; *readily soluble* in 5 parts Water, less so in Alcohol. Very easily soluble, also, in Chloroform to which a trace of Alcohol has been added.

Uses, like those of *Sparteine Sulphate* and *Hydrochlorate.*

—The action of **Sparteine and its Salts generally** is exercised through the Nerve-centres, *stimulating frequency of Pulse and Respiration.*—In Heart affections with disturbed compensation, with irregular, interrupted, arhythmic pulse, the SPARTEINE SALTS are (by GERMAIN-SÉE and others) recommended as **Succedanea** for *Digitalin* and *Convallamarin;* but the aptitude of the older Sparteine salts to *fully* replace Digitalis has not yet been established, although the report of their favorable action in the direction named is well sustained.

Doses stated at 0.02–0.05–0.07 gramme!!—Pills or solution.—Greater doses (0.15–0.2 gramme) have produced serious symptoms of somnolence; still greater ones bear decided *fatal* possibilities!

—Two approved formulas for SPARTEINE SALTS read as follows:

I.—Sparteine Sulphate, 0.5 gramme; Licorice-root and Licorice Powder, 2 grammes each; – make 30 pills;—1–2 pills 2–4 times p. day.

II.—Sparteine Sulphate, 0.2 gramme; White Sugar, 3 grammes;—make 10 wafer-powders;—1 powder 3 times p. day.

Spigeline.—The *highly toxic* active principle of *Spigelia marilandica (lonicera), Solanaceæ (Strychneæ),* [Maryland Pink]. —**Anthelmintic.** (Specially: **Ascarides!**)

PURE SPIGELINE is a very intensive poison, somewhat *similar to* NICOTINE and to CONIINE (Cicutine). Its therapeutic properties have not yet been exhaustively ascertained.

A *Fluid Extract*, however, from the herb and rhizome of the plant named has since some time been used for the above-stated purpose;—4–8 grammes having been given to adults, and 0.5–1 gramme to infants of 3–4 yrs., morning and evening, for several days,—being followed by a purgative.—The dose for *the active principle* SPIGELINE, on the other hand, is not yet definitely established.

Strontium Fluoride.—Granular-crystalline, white powder; difficultly soluble in water, easily so in Hydrofluoric and in Muriatic Acid.

Used—as *all Fluorine* combinations are since some time—in **Laryngeal Phthisis,** by *Inhalation.*

Sulphonal [$(C\ H_3)_2.\ C.\ (C_2\ H_5.\ S\ O_2)_2$].—(Di-ethyl-sulphon-di-methyl-methane.)—**A new Hypnotic; Non-narcotic,**—as described by Prof. KARST in the *Berliner Klinische Wochenschrift.*—Heavy, colorless, prismatic crystals; melting-point, about 130–131° C. Soluble in about 120 parts Water at ordinary temperature; more readily in Alcohol and in Alcoholized Ether.

SULPHONAL is reported to act hypnotically merely by intensifying or exciting the *natural somnolence* or soporific inclination, *without any narcotic action* being perceptible. It is especially eligible in many of those forms of Insomnia that proceed from *Nervous* excitement, etc.

Average adult dose: 2 grammes, in powder.

Accessory effects on the *Heart-action* have, so far, *not* been observed.

Terpin Hydrate, (Mono-hydrate of *Terpin;* or, Ter-hydrate of *optically inactive Terpenes* [Terpilenes]).—A **Succedaneum** for **Oil of Turpentine,** —of similar therapeutic effect, but *more easily taken and borne.*—Colorless, inodorous, rhombic crystals; easily soluble in hot Water, in Alcohol, Chloroform and Ether; of neutral reaction.

TERPIN HYDRATE has for several years past proved a remedial agent of unquestionable value in diseases of the Respiratory organs, the Kidneys, and the Nervous system. LÉPINE and others recommend it at as an *Expectorant* in chronic and in sub-acute Bronchitis, and in the Bronchial catarrhs of Phthisical

and Emphysematical patients; likewise as a *Diuretic* in Chronic Nephritis. He prefers it, in these uses, to Oil of Turpentine (optically active Terpenes).—(Its administration in Diphtheria has, so far, proved of little avail.)

Terpin Hydrate covers all the classes of cases in which Oil of Turpentine has been sucessfully applied; while it has the advantages over the latter, of possessing but a very weak aromatic taste, which *causes no antipathy*, and of *producing no gastric troubles* even in long-continued use. Among the clinical and practical authorities who have indorsed it in these particulars are DUJARDIN-BEAUMETZ, TANRET, SÉE, THIEU, DECROIZILLES, and many others.

Single dose: 0.2–0.4 gramme; maximal daily dose: 1–3 grammes;—pills, capsules, or hydro-alcoholic solution. (Some authorities, however, have given as high as 0.6–2.0 grammes at a time.)—*The larger doses* are said to suppress the excessive secretion in Bronchorrhœa,—thus acting *in an opposite direction* to the small ones.—For promoting *Diuresis* in Kidney affections, the larger doses are surely indicated.

—VIGIER'S favorite formula is:—Terpin Hydr. 5 grammes; 95-% Alcohol 20 do.; Glycerin 40 do.; (add Sugar, or not);—teaspoonful at a time.

—RABOW prescribes the following:—Terpin Hydrate 3 grammes; Sugar and Gum-arabic Mucilage, equal parts, sufficient;—make 30 pills;—1-4 pills 3 t. p. d.;

Or:—Terp. Hydr. 10 grammes; Alcohol 150 do.; Dist. Water 100 do.;—tablespoonful 3 t. p. d.

Zinc Cynocardate.—Yellow, granular Powder; insoluble in Water and in dilute Acids. Soluble in Ether, Chloroform, Alcohol.

Exhibited in Ointment-form, in *Eczema*, *Scabies*, etc.

The ***BULLETIN*** presents, ***besides*** the description of new or newly characterized Medicinal Substances, ***also*** some whose names and general characters are already currently known to every one in the Medical Profession and Drug Trade. I have been induced to receive ***these latter ones*** in the pages of the ***BULLETIN***, in order to meet demands from many of my readers, who appear to desire somewhat more precise information on such semi-familiar substances than what they have been able to gather from the literature accessible to them so far.

There are still a few other substances, which I have here mentioned ***without*** entering particularly on their ***therapeutic properties***, as these properties are, in their details, at present still the object of Clinical Experiment. As soon as definite reports concerning them are obtained, I shall revert to them in future Numbers.

E. MERCK.

MERCK'S BULLETIN

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A Periodical Record of New Discoveries, Introductions, or Applications of Medicinal Chemicals.

Moved by Professional — not Business — Interest.

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Entered at the Post-Office, New York, as Second-Class Mail Matter.

Acid, Camphoric,—$C_8 H_{14}.(C O. O H)_2$,—as an **Anti-Catarrhal,** as a **Dermatic,** and as an **Anti-Diaphoretic.**—A paper recently read by Dr. M. RESCHERT before the BERLIN (Germany) MEDICAL SOCIETY attributes to this acid, which hitherto had no therapeutic use, an eminently beneficial effect in *both acute and chronic inflammatory affections* of the *Mucous Membranes* of the *entire Respiratory Tract.* Likewise in various acute diseases of the *Dermis.*

A topical application of a 3–6-% solution of CAMPHORIC ACID effects a *contraction of the surface-tissue* (dermis or mucous membrane) *within as little as two minutes,*—thus immediately causing a sensation of relief and palliation of pain, which phenomena are combined with an essential reduction of the inflammatory symptoms.—*Acute Coryza* has repeatedly yielded to the nasal douche charged with a solution of 1 in 500, or to a cotton-wool tampon with a 2-% solution.

Withal, this acid exhibits *no caustic accessory effects;* on the contrary, it *actively promotes granulation* (in Laryngeal ulcerations, etc.); and solutions of but 0.9 of one per cent. act *aseptically.*

It may be exhibited *subcutaneously;* or *topically* in 1/2–1–2-% solution; or as an *Inhalant* in 1–2-% solution.

The probabilities are, that this substance may prove beneficial also in other directions besides those named. (Tuberculous processes, however, are not influenced by it.)

Dr. FÜRBRINGER, for instance, reports its prompt efficacy—in at least 50 per cent. of the cases treated—in *stopping the Night-Sweats of Consumptives.*—He uses, for this purpose, either 1 gramme [15 grains] three to four times through the day; or 2 grammes in the evening.—This is said by Dr. F. to be *the only specific action* possessed by CAMPHORIC ACID; which he terms: "an agreeable, very slightly toxic, and very little irritant, Antiseptic."

—CAMPHORIC ACID is in thin, colorless, scale-like crystals; or in large, limpid, monoclinic crystals, – of acid taste; melting-point 178° C. [352.4 F.]; little soluble in Water,—easily so in Alcohol or Ether. – Fats and Oils dissolve up to 2 per cent. of it.

Acid, Oxalic, chem. pure,—for Analyses.—$C_2 H_2 O_4 + 2$ aq.—Large, colorless prisms; perfectly *clearly* soluble in Water; volatilizable *without* residue;—*free from Calcium, Iron, Sulphuric Acid.*

—(OXALIC ACID of the degree of purity here described was hitherto unknown outside of the Laboratory;—E. MERCK has recently introduced this grade as an article of commerce.)

Acid, Phospho-antimonic, —*according to* **Otto.** — Yellowish, strongly acid liquid.—Much used as a *Reagent for Alkaloids.*

Acid, Santoninic (*not* SANTONIC !),—$C_{15}\,H_{20}\,O_4$.—Small, colorless, rhombic crystals ; difficultly soluble in Water or Ether,—easily so in Alcohol or Chloroform.—Does *not* turn dark on exposure to light.

SANTONINIC ACID (or its Anhydride : SANTONIN) may be considered the active principle of *Levant Wormseed* (flower-buds of Artemisia maritima),—also called *Santonica*, or Cina, or Semen-contra.

—Many of the *Metallic Salts* of Santoninic Acid are exhibited therapeutically under the same indications that determine the use of Santonica or of its extract or tincture.—(*See, for instance :* IRON SANTONINATE, in present BULLETIN.)

Ammonium Carbaminate, chem. pure.—$(N\,H_4)_2.\,C\,O_2$.—*So-called "Anhydrous Ammonium Carbonate."*—Light, white powder ; extremely volatile.—Formed by the union of Carbonic Acid gas and Ammonia gas under Absolute Alcohol.—On contact with Water, it is at once transformed into AMMONIUM CARBONATE.

Ammonium and **Potassium, Fluoride,**—$N\,H_4\,Fl.\,K\,Fl.$—Fine, colorless, transparent crystals,—mostly leaflets ; *very easily soluble in Water.* Decomposes gradually in the air,—giving-up HYDROGEN FLUORIDE, which attacks glass containers.

Apo-morphine Sulphate, cryst.—$(C_{17}\,H_{17}\,N\,O_2)_2.\,H_2\,S\,O_4$.—Fine, white, crystalline leaflets ; turning of a silver-grey color in the course of time.—*Soluble in Water.*—(The solution turns green on exposure to light.)

Barium, Sulphurated,—*according to* **Winkler.**—*For the generation of* ARSENIUM-FREE HYDROGEN SULPHIDE in Kipp's Apparatus.

—WINKLER'S FORMULA for preparing the above compound reads as follows :—Mix 100 parts of *Barium Sulphate*, (Heavy Spar), 25 of *Powdered Anthracite*, and 20 of *Table Salt ;* triturate finely ; put into a crucible while moist ; heat to whiteness ; then cool rapidly.

Bismuth Per-manganate, basic.—Microcrystalline powder, of velvety-black color; *absolutely insoluble in Water* or in Alcohol; *soluble in dilute acids*, (producing a violet color).

Brom-phenyl-acet-amide, Mono-.— This *Bromo-substituted* compound of *Medicinal Phenyl-acet-amide*—(first noticed in BULLETIN No. 3 !)—appears in small, white, lustrous needles, which melt at 165° C. [329 F].

Caffeine Boro-Citrate.—*True* double Salt.—A voluminous, white powder; *easily soluble* in Water, Alcohol, or Chloroform.

—It combines the *therapeutic properties* of CAFFEINE with those of BORIC ACID.

Calcium, Sulphurated (*not* = Sulphide!).—There are two new compounds answering to this description;—*both being used for the generation of* HYDROGEN SULPHIDE in Kipp's Apparatus.

Their preparation is as follows:

1,—*According to* **Fresenius**:—Mix 4 parts of *Sulphurated Lime*, (Calcic Liver of Sulphur), and 1 of *Anhydrous Calcium Sulphate*, and, with a sufficiency of *Water*, form a stiff paste therefrom. This is pressed into paper molds; when half-dry, cut into cubes; and then dried at a moderate heat.

2,—*According to* **Otto**:—Mix 7 parts of *Anhydrous Calcium Sulphate*, 3 of *Powdered Charcoal*, and 1 of *Rye Flour*, with sufficient *Water* to form a thick paste. Shape this into cylinders; when dry, subject them to an intensive bright-red heat in a Hessian crucible.

Egg Preparations,—All Soluble in Water:—

I.—**Albumen** (White of Egg), *dried, in Scales.*—A saturated aqueous solution of a well-made, pure grade of DRIED ALBUMEN is *fit for replacing* FRESH EGG ALBUMEN *in all its uses*,—dietetic or technical.

II.—**Albumin** (the *Proteid Compound* of White of Egg, *deprived of the Cellular Tissue*) is made in various grades and for various specific purposes,—as follows:

1,—*Ordinary;*

2,—*Inodorous;*

3,—*In Scales*,—free from all *Fibrinous Matter*,—for Laboratory use;

4,—*Impalpable Powder*,—for Gilding, Stamping, Embossing, etc.

III.—**Yelk** (Yolk) [*Vitellus ovi*], *dried*, is likewise prepared in various

grades of fineness, and of different physical constitutions,—so as to be exactly adapted to the uses named below:

1,—*Sifted,*—for *Bird-food;*

2,—*Light, flocculent Powder,*—for *Human Food;*

3,—*In Spongious Flakes,*—for *Human Food* and for rearing *Exotic Birds.*

Gold, metallic, precipitated, pure.—There are two different forms of METALLIC GOLD PRECIPITATE obtainable from solutions of *Gold-salts,*—as follows:

1,—**Amorphous,**—a soft, lustreless, brown powder,—by *Solution of Ferrous Sulphate;*

2,—**In fine Scales,**—with metallic lustre,—by *Oxalic Acid.*

Helleborein (*not* HELLEBORIN!).—One of the two **Glucosides** from *Black Hellebore.*—Recently found to possess valuable properties as a **Topical Anesthetic,**—especially for *Ophthalmology.*

Experiments on rabbits and dogs, with 3–4 drops of an aqueous solution containing one-half milligramme [$\frac{1}{130}$ grain] per drop, applied to the eye, produced an *Anesthesia of much longer duration than that from* COCAINE,—i. e., of half an hour.—Helleborein is, therefore, thought to be preferable to Cocaine in some instances.

(The *older uses* of HELLEBOREIN have been chiefly those of a *Succedaneum for Digitalin.* Initial dose: 0.012 gramme [about 1/5—more exactly: 0.18—grain].—Its *Hypodermic* use is facilitated by its ready solubility in Water.)

Hyoscyamine, and Salts.—Of this group there are principally Two KINDS in the market, *differing radically* in their sources and manner of production,—viz.:

1,—The **True Hyoscyamine Merck**, *made directly and only* **from Hyoscyamus niger**, (Henbane).—A Hyoscyamus preparation is to be called "TRUE" when prepared *exclusively from the Black Hyoscyamus plant;*—not otherwise.

2,—The **Derived** (Converted or Commercial) **Hyoscyamine,** *made indirectly by chemical transmutation* **out of the Atropine Alkaloid,**—which in its turn has been obtained from *Belladonna* (Deadly Nightshade) or from *Stramonium* (Thornapple).

THIS, A SEMI-ARTIFICIAL SPECIES of "Hyoscyamine," was long ago discovered, and the process for its derivation out of the different Alkaloid ATROPINE demonstrated and published by Prof. LADENBURG, of KIEL UNIVERSITY, (Germany). But it was reserved unto these latter days for a certain chemical factory in Germany to blazon this discovery,—since years the common property of the chemical world,—as a scientific feat of their own; the value of which to *Therapy* would be a questionable one at best; for hardly any chemically well-informed physician would be ready to admit, on the mere showing of *chemical identity*, that the TRUE and the DERIVED Alkaloids (that is: HYOSCYAMUS-HYOSCYAMINE and BELLADONNA-HYOSCYAMINE) could also be safely assumed as being *therapeutically* or *physiologically identical.*—On the contrary, *the latter point remains to be proven;* and physicians wishing to be sure of what they prescribe, will naturally order "TRUE HYOSCYAMINE" (that is: *Hyoscyamine, direct from Hyoscyamus*).

Hyoscyamine Hydro-iodate, pure, cryst.—$C_{17}H_{23}NO_3.HI$.—Delicate white crystals; *easily soluble* in Water, Alcohol, or Chloroform.—This salt acts *Mydriatically*, and is *more readily soluble* than that of ATROPINE.—Melting-point, 154° C [309.2 F].

—THIS SALT *was hitherto not prepared in a crystalline form.*

Iodine Tri-chloride — (*see* BULLETIN *No. 31*) has recently been officially tested as to its *Antiseptic Power* by the IMPERIAL SANITARY BUREAU of the German Empire, at Berlin. (Dr. O. RIEDEL was the examining chemist.) The following result was ascertained:

> "An *aqueous* solution of 1 in 1000 destroys resistant bacillus-spores within a comparatively short time; but *only* the aqueous solution does this. Alcoholic or oily solutions proved ineffective.
>
> "IODINE TRI-CHLORIDE *far surpasses Carbolic Acid*, and is next to Corrosive Sublimate, in Antiseptic Power."

Iodoform, bituminized (deodorized).—This preparation, invented by Dr. EHRMANN, consists of a combination of IODOFORM with TAR, in which *the specific, disagreeable odor* of the former constituent *is entirely absorbed* by that of the latter; so that *nothing but an agreeable, faint, Tar-like smell remains.*

BITUMINIZED IODOFORM is in *hard*, transparent or translucent *scales*, of metallic lustre and brown color, and resembling small laminæ of Mica in fineness. These are *easily pulverizable*. The powder thus gained is applied to sores, wounds, etc., by means of a soft brush, and is then covered with sterilized, aseptic, or antiseptic cotton-wadding.

The inventor recommends the use of the BITUMINIZED IODOFORM particularly in *Soft Ulcerations*—more especially in those inclining to *Gangrenescence*; and in all those cases which forbid the application of PURE IODOFORM on account of *Eczema*.

Iron Santoninate (*not* SANTONATE !),—$Fe(C_{15}H_{19}O_4)_2$.—Pale-red, amorphous, dusty powder; soluble in Water or Ether,—very easily so in Alcohol or Chloroform.

—(*Therapeutic use*—compare: ACID, SANTONINIC, in present BULLETIN.)

Mercury Albuminate, dry; *Pharmaceutical Formula* according to A. SCHNEIDER (in *Pharmazeutische Centralhalle*, 1888, pages 141 and 163):—

"Dissolve 1 part, by weight, of best *Egg Albumin* * in 8 of *Water*, by shaking.—Filter.

"Add cautiously to the filtrate: *Mercury Bichloride* (Corrosive Sublimate),—stirring after the addition of each portion,—as long as the addition will cause a precipitation. (This will require in the neighborhood of 333 parts of the Sublimate to every 1000 of the Albumin employed.) Thereupon allow the precipitate 48 hours for settling.

"Decant the supernatant liquor from the precipitate; mix the latter—without first washing it—with enough *Powdered Sugar of Milk* to produce an almost dry powder.—Dry this over Sulphuric Acid; then powder finely; then triturate with sufficient additional Milk-Sugar, to make the Sublimate employed represent four-tenths of one per cent. of the whole."

—According to this, 1000 parts of MERCURY ALBUMINATE by SCHNEIDER'S formula will contain 4 of the Bichloride,—to about 12 of Albumin and 984 of Lactose.

The ALBUMINATE thus prepared *gives up no Mercury Bichloride to Water* with which it is agitated; while *it does so readily to solutions* of Sodium Chloride, Ammonium Chloride, Potassium Iodide, Blood-serum, Meat-broth, etc., upon agitation.

(*) See page 30 of present BULLETIN.—*Editor*.

Hence, it is evident that *the special virtue of this preparation as a* **Wound-dressing** consists in its furnishing *a constant and gradually-working source of* MERCURY BICHLORIDE, of which the quantity thus set-free bears *an invariable relation to that of the serous wound-secretion.* This secretion naturally contains a certain proportion of SODIUM CHLORIDE; and *in exact ratio* to this proportion of the Sodium-salt will be the proportion of CORROSIVE SUBLIMATE dissolved out of the MERCURY-ALBUMINATE dressing by the traumatic fluids: that is, six molecules of Sodium Chloride will always be needed for setting-free one molecule of the Mercury-salt.

Moreover,—the solution thus formed *does not throw-down any Albumin;* thus keeping the surface-tissues unclogged by any deposit from the dressing.

Mercury Cyanide in Diphtheria!—The Swedish physician STELLDEN reports on 1400 cases of *Diphtheria* treated by him with MERCURY CYANIDE. There were, among that number, but 69 deaths,—*not amounting to quite 5 per cent.;* while, ordinarily, in the same district, the death-rate showed *92 per cent.!*

STELLDEN'S FORMULA is:

Mercury Cyanide, 0.02 grammes [0.3 grain],
Tincture Aconite, 2.0 " [30.0 "],
Honey.....50.0 " [450.0 "],

—Mix.—*Dose:*—One Teaspoonful every 15, 30 or 60 minutes, according to patient's age.

Besides this, a GARGLE of 1 part *Mercury Cyanide* to 10,000 of *Peppermint Water* is to be used every 15 minutes.

—These frequent doses and applications are supposed to create a medium in which the Diphtherial bacillus cannot live.

Mercury Di-phenate (Di-phenylate; Bi-carbolate);—and **Di-phenyl-mercury.**—Some articles in recent pharmaceutical journals, which treated specially of my preparations,—having confounded the *two compounds* above named, *as if they were identical,*—I feel called-upon to publicly rectify this misapprehension, into which the close resemblance of names may lead still others; and which is all the more dangerous because the second of the substances named is a deadly poison of *an extremely insidious character.*

Mercury Di-Phenate is a *neutral salt of Mercury and Carbolic Acid*, containing two equivalents of the acid to one of the metal; —the two outside atoms of Hydrogen in a double molecule of Carbolic Acid, (Phenol):

$$\left.\begin{matrix} C_6\,H_5.\,O\,H \\ C_6\,H_5.\,O\,H \end{matrix}\right\},$$

having been substituted by a *bivalent* Mercury atom, thus:

$$\left.\begin{matrix} C_6\,H_5.\,O \\ C_6\,H_5.\,O \end{matrix}\right\rangle Hg.$$

This preparation, and the so-called "basic" Phenate, (Mercury Sub-carbolate): —Hg. $C_6\,H_5\,O.\,O\,H$,—are both in use as **Anti-Syphilitic** remedies; the *former* (both the perfectly neutral "Mercury Di-phenate Merck," and a variation of it, known as "Mercury Phenate according to Schadeck's Formula") *being well established and very favorably reputed as such;*—while the Sub-phenate of Mercury (known as "Gamberini's Formula") is of less repute, because of less constant composition.

—On the other hand,—**Di-phenyl-mercury** is not a Salt of Phenol and Mercury at all, but a so-called *Metallo-organic compound* (or, more exactly: a Metallo-*aromatic* compound). It arises likewise from a substitution of two atoms of Hydrogen by one of Mercury; this substitution, however, in the present case, does not take place in a double molecule of *Phenol* (Carbolic Acid), but in a double molecule of *Benzene* (Benzol):

$$\left.\begin{matrix} C_6\,H_6 \\ C_6\,H_6 \end{matrix}\right\},$$

—thus forming Di-phenyl-mercury:

$$\left.\begin{matrix} C_6\,H_5 \\ C_6\,H_5 \end{matrix}\right\rangle Hg.$$

It will be seen that this latter compound *differs from Mercury Di-phenate*, before described, *by the lack of the two Oxygen-atoms* which, in distinction from it, characterize the Diphenate.

—Di-phenyl-mercury is no less insidiously toxic than its close relative, *Di-methyl-mercury*, which, in 1865, cost two British chemists who were preparing it, their lives! (P. Hepp, Prumers, and Balogh-Kalman,—experimenting on *Di-ethyl-mercury*,—have, moreover, demonstrated *the probable inavailability*, for therapeutic use, of *all this group of Organo-derivatives of Mercury*, owing to their excessively long continued latency in the system.)

—*A test, distinctive* between the Di-phenate of Mercury and Di-phenyl-mercury, is very easily made by heating a small portion of either compound in a long, dry test-tube. The *medicinal Salt* will emit fumes of *metallic Mercury*, which condense in the upper, cooler part of the tube in small globules, visible through a magnifying-glass. —The *toxic Organo-derivative* sublimes unchanged, depositing *minute needles of the same compound* in the upper part of the tube.

Mercury Sulphite,—$Hg\ S\ O_3$.—(A Peroxide-salt.)—A heavy white powder, obtained by precipitation.—Insoluble in Water.—On exposure to light, it turns reddish, giving-off Sulphur Di-oxide, and gradually producing RED OXIDE, (Mercury Per-oxide). Under the influence of heat, it quickly splits into Metallic Mercury, Mercuric Sulphate and Sulphur Di-oxide.

Methyl-tri-hydro-oxy-quinoline-carbonate of **Sodium,** (proposed empiric name: "**Thermifugin**").—*Methyl-tri-hydro-oxy-quinoline-carbonic Acid*—$C_{11}\ H_{13}\ O_3\ N$—was recently discovered by NENCKI, of Basle. —*Its Sodium-salt* (the so-called "THERMIFUGIN") has been found, by Prof. DEMME, of Berne, to be an interesting **Antipyretic,** which combines the three effects of *reducing temperature*, of *retarding the pulse*, and of *increasing the blood-pressure.*

The *Acid* above named forms beautiful crystals, which are but little soluble in Water or Alcohol, and melt at 265° C [509 F].—Its *Sodium-salt* (the so-called "THERMIFUGIN") is faintly yellowish-white, dimly lustrous, and forms a dark-brown aqueous solution,—which change of color, however, does not in any wise affect the character or virtues of the compound.

The doses of "THERMIFUGIN" are stated at: 0.1–0.15 gramme [$1\frac{1}{2}$–$2\frac{1}{4}$ grains] for age 4–6; 0.2 gm. [3 gr.] at 7–10; 0.25 gm. [$3\frac{3}{4}$ gr.] at 11–15 years.

Narceine Hydrochlorate Merck, chem. pure.—Most of the NARCEINES of commerce are of varying constitutions; in all probability they contain foreign substances; – this, at least, seems the only tenable explanation of the widely differing statements in Chemical Literature as to the *melting-point* of this Alkaloid.—According to HESSE, for instance, this point is at 145° C [293 F]; a lot of British Narceine tested by me melted at 153° C [307.4 F]. —

When such a commercial article is subjected to moderate oxydation by *Potassium Permanganate,*—according to CLAUS and MEIXNER,—**so-called "Pure Narceine"** is obtained, melting at 162° C [323.6 F]. It will be seen, however, from facts adduced below, that the Alkaloid thus obtained *is not yet pure;* as it does not possess the true Melting-standard.

While the therapeutic availability of NARCEINE in the **Alkaloid** form is impaired by its *poor solubility* (1 part in 250 of boiling Water) and by the difficulty of determining its *condition of purity,*—its **Hydrochloric Salt** is notably free from these drawbacks; and *this* appears, therefore, to be the most available form in which to exhibit NARCEINE as a medicine.

Merck's Chemically Pure Narceine Hydrochlorate comes in the form of short, stout, lustrous prisms, which are soluble in all proportions in boiling Water. Its solubility in cold Water vastly exceeds that of the free Alkaloid.(—Strong hot solutions, on cooling, deposit delicate needles, in appearance resembling free Narceine; but in truth consisting of a mixture of the free Alkaloid with the Hydrochlorate.)

The *most practical Solvent* for the *Hydrochlorate* is Water containing a small admixture of Alcohol.

The CHEMICALLY PURE NARCEINE HYDROCHLORATE MERCK is of *absolute purity, corresponding exactly* to the formula $C_{23}H_{29}NO_9$. HCl, which is that of the *chemically neutral salt,* (*notwithstanding* an acid reaction shown by it on color-tests; a property common to many strictly neutral salts).

The Actually Pure Narceine Alkaloid,—*absolutely free from Chlorine!*—obtained by isolation from the above Salt, has AN APPRECIABLY HIGHER MELTING-POINT than any mentioned above,—viz.: **170° C [338 F]**.—(This fact is, in itself, a conclusive proof of the superior purity of the *Hydrochlorate* from which the Alkaloid was isolated.)

—According to the clinical tests quoted by ERLENMEYER and REISSNER, the chief special value of NARCEINE is in its use as a **Sedative** and **Hypnotic** in *Psychiatric diseases;* on which field of practice it has, in most cases, yielded *results superior to those of* MORPHINE.

Also for a *Hypnotic and Sedative in general,* it has proved exceedingly valuable: according to DEBOUT's reports, a dose as small as 0.03 gramme [½ grain] suffices to induce a quiet sleep without oppressive dreams, and not followed by headache on awaking.

According to OETINGER, PETRINI, SICHTING, and others, it is highly approved in *Coughing-spells;* and in *Ischias* and *Neuralgias* is preferable to Morphine!

Contrary results reported are probably due to the lack of purity in the NARCEINE employed; ERLENMEYER, for instance, mentions having occasionally experimented with utterly inefficient preparations sold by that name.—Systematic investigations, based on the use of an *Absolutely Pure Salt*, ought, therefore, to prove a matter of high interest.

The *dose*, according to HUSEMANN, may run from 0.06 to 0.2 gramme [about 1 to 3 grains], or more.

Ouabain—$C_{30}H_{46}O_{12}$.—A **Glucoside** found by ARNAUD in the wood and root of the *Ouabaio*, a tree belonging to the family of *Apocyneæ*, from whose wood and root the *Comalis* of Eastern Africa prepare their arrow-poison by aqueous infusion.—Perfectly white, inodorous crystals, devoid of bitter taste,—soluble in Water, and containing 7 molecules of Water of crystallisation in addition to above formula.—Tannin precipitates the glucoside from its aqueous solution.

A **Heart-poison** *when brought directly into the circulation*,—this glucoside is *wholly innocuous by mouth;*—thus taken, it is even reported to be a promoter of digestion!

Physostigmine (Eserine).—This **Alkaloid** (the active principle of the *Calabar Bean*=Seed of Physostigma venenosum), **and some of its Salts,** possess the property of *deliquescing* on contact with the atmosphere; and also of *turning of a reddish color* on exposure to the light.

NEITHER the deliquesence (producing conglutination or "baking"), NOR the change of color (based on the formation of RUBRESERINE), *do in anywise affect the therapeutic efficacy* or other desirable qualities of a PURE, WELL-MADE Eserine preparation.

—There may be Eserine preparations in commerce which are *contaminated with foreign matter* from the outset, and which are *therefore* also particularly liable to suffer a deteriorative decomposition by exposure or age; THIS FACT may have created an *undue prejudice* against the *harmless* "BAKING" or the equally *harmless* "REDDENING," to which the *purest makes* of Eserine are, from the chemical and physical nature of the Physostigma-Alkaloid, unavoidably subject.

Phosphorus Tri-sulphide, *(Thio-phosphorous Anhydride)*,—P_2S_3.—Greyish-yellow, crystalline lumps; totally insoluble in Carbon Bi-sulphide.—Water decomposes it into Hydrogen Sulphide and PHOSPHOROUS ACID. - Melts, without decomposition, at 290° C [554 F].

Potassium Bi-sulphite, chem. pure.—K H. SO_3 + aq.— Large, transparent, monoclinic crystals; or small white needles. *Easily soluble in Water.*—Emits odor of Sulphur Di-oxide, (Sulphurous Anhydride).—Contains about 87 per cent. of the Anhydrous Bi-sulphite.

Quinine Hydrochloro-Citrate (Citrico-Muriate).—*A true double Salt.*—Very small, lustrous crystals; soluble in a great excess of Water,—more easily in Alcohol.

Quinine Hydro-silico-fluorate,—C_{20} H_{24} N_2 O_2. H_2 Si Fl_6.—White, microscopic crystals; *soluble with extreme facility in Water;* difficultly soluble in Alcohol or Ether.—The aqueous solution gives a strong acid reaction, and fluoresces beautifully.

Quinine Phtalate,— C_{20} H_{24} N_2 O_2. C_8 H_6 O_4. (?)—A *light* Quinine preparation; in translucent scales; melting at 70° C [158 F]; soluble with entire clearness in 2 parts, by weight, of 95-% Alcohol,—which solution admits of cautious *dilution with Water.*—Cold Water alone takes up but little of the salt; and the excess taken-up by hot Water falls out on cooling. The aqueous solution reacts acidulously.

Quinine and **Ammonium, Citrate,** (Ammonio-Citrate of Quinine).—*A true double Salt.*—Light, white powder; little soluble in Water,—easily so in Alcohol.

Sodium Bi-sulphate (Acid Sulphate; Hydro-sulphate),—Na H. S O_4, —**pure; fused, in drops.**— White, very hard *rotula;* slowly, but *clearly,* soluble in Water.—This salt decomposes Carbonates, and is therefore sometimes used for the production of *pure Carbonic Acid.*

Sulphonal—(*compare* BULLETIN *No. 3, page 25!*),—according to SCHOLVIEN, when *pure,* has its *melting-point* not at about 130.5° C [266.9 F], as formerly assumed; but at 125.5° C [257.9 F].

Its *solubilities* are as follows:—In 500 parts, by weight, of Water at 15° C [59 F]; in 133 of Ether, or 65 of Absolute Alcohol, or 110 of 50-% Alcohol,—all at above temperature; in 15 of *boiling* Water: and in 2 parts of *boiling* Alcohol.

Tri-methyl-carbinol—$(C H_3)_3 . C O H$ — [*Tertiary Butyl-alcohol*].—Perfectly clearly deliquescent rhombic plates; melting-point, 25° C [77 F]; boiling-point, about 85° C [185 F].—On oxydation, decomposes into Acetone, Carbonic Acid, Acetic Acid, with traces of Iso-butyric Acid; in contradistinction to the PRIMARY and SECONDARY Butyl-alcohols, which, on oxydation, furnish Butyric Acid, and the corresponding Ketone ($C_4 H_8 O$), respectively.

Vasicine.—An **Alkaloid** found by Dr. HOOPER in the leaves of *Adhatoda vasica* NEES, (called "Vasatha" in Sanscrit).—This plant, which belongs to the natural order of *Acanthaceæ*, is a native of Punjaub, where it occurs very frequently; it is also found in Ceylon and the Malay islands. It grows as a dense, almost tree-like shrub; and its leaves are used in its native region as an **Expectorant** and **Palliative** in *Asthma*, *Bronchitis*, and other affections of the *respiratory tract*.—Besides this, they are used with notable effect as an **Insecticide.**

Numerous experiments with a solution of the ALCOHOLIC EXTRACT from VASATHA-LEAVES have shown this to be an *intensively lethal poison to all the lower orders of animals;* while it produced no appreciable effect in healthy animals of the higher orders.

Vernonin—$C_{10} H_{24} O_7$.—According to HECKEL and SCHLAGDENHAUFFEN,—a **Glucoside** from the root of *Vernonia nigritans* S. & M., a plant indigenous to the Eastern coast of South Africa, and by the natives there called "Batjentjos".—The glucoside forms a white and rather hygroscopic powder.

The physiological action of VERNONIN is that of a **Heart-poison,**—analogous to that of DIGITALIS, CONVALLARIA, STROPHANTHUS, and other vegetable Heart-poisons.

Vernonia nigritans seems to be the first *Composite* in which a Digitalis-like principle was found;—only, the action of VERNONIN is about *40 times weaker* than that of an equal dose of DIGITALIN.

(The examination of the Batjentjos-root for *Emetine* proved devoid of results.)

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There are still a few other substances, which I have here mentioned ***without*** entering particularly on their ***therapeutic properties,*** as these properties are, in their details, at present still the object of Clinical Experiment. As soon as definite reports concerning them are obtained, I shall revert to them in future Numbers.

E. MERCK.

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Entered at the Post-Office, New York, as Second-Class Mail Matter.

Acetal (*Di-ethyl-acetal*)—$C_6 H_{14} O_2$, viz.: $C H_3 . C H (O . C_2 H_5)_2$—is obtained as a by-product of Alcohol or Aldehyd manufacture. It is a limpid liquid, of specific gravity 0.821 at 22° C [71.6 F]; boiling-point 104° C [219.2 F]. It is soluble in 18 parts of Water at 25° C [77 F].

According to von MERING, it is given *internally* as a **Narcotic,** in doses of 5 to 10 grammes [1¼ to 2½ drams].

Acid, Cresylic, (*Cresol*), as an **Antiseptic,** has recently been brought into notice by DUJARDIN-BEAUMETZ. He finds its *Anti-Zymotic* action *superior to that of* PHENIC (Carbolic) ACID;—*one* part of a 2-per-cent. solution added to *ten* parts of a fermenting liquid, according to that authority, stops all further fermentation.

Acid, Lactic, has recently come into prominence as an **Anti-Diarrhetic** in *Phthisis*, where all other remedies have failed.—The *dosing* commences with 2 grammes [30 grains] dissolved in 120 grammes [4 fluidounces] of Water;—rising to 6 or 8 grammes [1½ to 2 drams] per day.

The Phthisical Diarrhea is said to yield to three or four days of this treatment.

Acid, Tri-chlor-acetic,—$C Cl_3 . C O_2 H$. - Deliquescent rhombohedral crystals; melting-point 52.3° C [126.14 F]; boiling-point 195° C [383 F]; specific gravity at 46° C [114.8 F] : 1.617.

—This Acid is the best and quickest **Escharotic** for Warts, hard Corns, and indurated Bunions.

Adonis æstivalis: *the flowering herb*—in the *dose* of 4 to 30 grammes [1 dram to 1 ounce], prepared into an INFUSION, per day - is described by BIRGOTTI as an excellent **Heart-remedy** in *Stenose* or *Mitral Insufficiency;* he declares it to be useful also in cases where DIGITALIS fails or is hurtful.

Alstonine (Chlorogenine)—the ALKALOID of *Alstonia constricta* [*not* the "Dita-bark" tree, which is Alstonia scholaris!], an Australasian Apocynea — forms white, lustrous, silk-like crystals, easily soluble in Ether, Chloroform or Alcohol. It is nearly insoluble in cold Water; *somewhat soluble in hot Water,* to which it imparts an *intensely bitter taste.*

ALSTONINE is an **Anti-Periodic, Antiseptic,** and **Stimulant,**—thus *uniting the qualities* of QUININE and STRYCHNINE. It is employed in *Typhoid* and in *Lacteal Fevers.*

—(The bark of Alstonia constricta is also sometimes used by Ale brewers as a substitute for Hops; it being free from the effect of inducing headaches or any of the other ailings consequent on the imbibition of the Hop-bitter.)

Ammonium Iodide is proposed by D'OLIVERI as a **Succedaneum for Potassium Iodide,** in view of the untoward accessory effects produced in the *Vasomotor centre* by continued administration of Potassium-salts, — a drawback not found in the AMMONIUM IODIDE.

Dose for Adults: 1–1½ grammes [15–23 grains], in Iced Water, three times a day, after meals;—for Children: 0.25–0.5 gramme [4–8 grains].

Andromedo-toxin — $C_{34}\ H_{51}\ O_{10}$ — is the active principle of the species of Rosebay known as *Rhododendron ponticum*, *Ericaceæ*, (contained, according to PLUGGE, also in other Ericaceas). It forms needle-shaped crystals, *easily soluble* in cold or hot Water. It melts at 228–229° C [about 443 F], and turns the plane of polarized light to the left. A red reaction takes place on evaporation with concentrated Sulphuric Acid, or with Phosphoric or Hydrochloric Acids. This reaction is capable of showing the presence of as little as one-half of a millionth of a gramme [seven to eight millionths of a grain] of Andromedo-toxin.

ANDROMEDO-TOXIN is an enormously strong poison; it *paralyzes the peripheral motor nerves;* death ensues through arrest of the respiration.—Lethal dose for *frogs:* one ten-thousandth of a milligramme [one and one-half millionths of a grain]; for *pigeons:* one-tenth of a milligramme [one and one-half thousandths of a grain].

ANDROMEDO-TOXIN is an extremely powerful **Emetic!**

Antipyrine *(Di-methyl-oxy-quinizine)*, is highly useful as an *Adjunct to* COCAINE in **Dental Anesthetization.** It causes Anesthesia to set-in a little later than what it would on Cocaine alone, but *prolongs its duration* quite markedly. Consequently, the desired duration can thus be attained by *a smaller dose of Cocaine* than ordinarily; whereby the danger of Cocaine-intoxication is lessened!—The approved formula for the combination is:

Cocaine Muriate 0.04 gramme [0.6 grain]; Antipyrine 0.4 gramme [6 grains]; Distilled Water 1 gramme [15 grains].

Apiol, solid (crystallized),—also called "*Parsley-Camphor*";—the Stearoptene of the Essential Oil of *Apium petroselinum*;—acts as a **Cerebral Stimulant** in doses of 1 gramme [15 grains]; while in doses 3–4 times as great it exhibits all the effects characteristic of QUININE!

Betol —$C_6 H_4 (O H) CO_2 . C_{10} H_7$— [*Salicylo-beta-Naphthylic Ether*]; (Salicylate of Beta-Naphthol; also called "Naphthalol," "Naphtho-Salol," "Sali-Naphthol"). —White, lustrous, crystalline powder; inodorous, insipid; melting at 95° C [203 F]; nearly *insoluble* in both hot and cold Water or Glycerin; little soluble in cold Alcohol; easily so (1 in 3) in boiling Alcohol,—likewise in warm Linseed-oil.

—The *physiological and therapeutical peculiarity* of BETOL (which it shares with its congener, SALOL, —Salicylo-Phenylic Ether) is, that it is *inert and innocuous in the normal Gastric digestive process;* but as soon as it reaches the *Alkaline fluids of the Intestinal digestion,* it is by them decomposed into its constituents: SALICYLIC ACID and BETA-NAPHTHOL.

On this property is based its therapeutic use as an **Internal Antiseptic** in various ailments involving *Fermentative or Putrid processes of the Intestinal Tract.*

KOBERT has also employed it with good effect, without untoward accessories, in various *Cystic Catarrhs,* especially in *Gonorrheal Cystitis,* and in *Articular Rheumatism.*—The DOSES were of 0.3–0.5 gramme [4½–7½ grains], four times daily. They may, however, without incurring any risk, be increased to three or fourfold the weights just stated, whenever the nature of the case demands more energetic treatment.

BETOL is, therefore, to be considered a *Non-toxic Succedaneum* for SODIUM SALICYLATE and for PHENOL.

Bismuth Oxy-iodide ("Sub-iodide"),—Bi O I,—a brown-red, amorphous, soft powder; insoluble, insipid and inodorous;—combines the effects of Iodine and of the Bismuth preparations, and consequently is of great service — according to LISTER, REYNOLD, and other authorities—as an **Antiseptic** in *Suppurating Wounds, Ulcers,* etc., to which it is applied DIRECTLY, dry.

It has also been employed successfully by INJECTION in *Gonorrhea,*—1 part suspended in 100 of Water; and INTERNALLY in *Gastric Ulcerations* and in *Typhoid Fever,*—about 0.3–0.6 gramme [4½–9 grains] per day.

Bismuth, peptonated.—Contains 3.8 per cent. of BISMUTH in soluble form.—In *Dyspepsia* and *Gastralgia,*—about 5 grammes [75 grains], two or three times per day.

Boldoin—$C_{30}H_{52}O_8$.—**Glucoside** of the Boldo-leaves, from *Peumus boldus*, Tul., (*Boldoa fragrans*, Gay).—[*Not to be confounded with the* ALKALOID "BOLDINE," from the same source!]—(The leaves of Boldo are stated to contain only about $^1/_{10}$ per cent. of the *Alkaloid*, while they yield about 3 per cent. of the *Glucoside*.)

As a **Hypnotic**, *Boldoin* is by JURANVILLE pronounced to be *more efficient than either* MORPHINE *or* CHLORAL HYDRATE. It has no untoward accessory effects and no disagreeable taste; it is an *Invigorant*, and *stimulates the appetite*. The sleep caused by it has the qualities of natural sleep, and the *respiration* in that sleep is *regular*.

—It is mostly given *in capsules*, at the rate of 0.2 gramme (3 grains) per day; or *subcutaneously* in aqueous solution.

—According to latest reports, BOLDOIN acts as a **Local Anesthetic** *on Mucous Membranes*,—similarly to COCAINE.

Caffeine Citrico-benzoate, – easily soluble,—and :
Caffeine Citrate,—are *both* TRUE SALTS, – that is : *chemical* combinations ; *not mechanical or physical* mixtures !

CAFFEINE CITRATE, taken half-hourly in 2-grain doses, is an efficient **Anodyne** in *Nervous Headaches*,—very rarely requiring more than 3 doses.—CARPENTER prefers it to GUARANA, because it is not rejected by the stomach.

—A well-approved formula is :

Ammonium Hydrochlorate 3 grammes [46 grains]; Morphine Acetate 0.0166 gramme [$^1/_4$ grain]; *Caffeine Citrate* 0.5 gramme [7.7 grains]; Spirit of Ammonia 1 gramme [15 grains]; Elixir of Guarana 32 grammes [1 ounce]; Rose-water, the same.

Calcium Phosphate, tri-basic, gelatinous.—*This form* of Calcium Phosphate is, according to KOPP, the most eligible prime material for the LACTO-PHOSPHATE SYRUPS and allied liquid preparations.

Camphor, Carbolized, (Phenol-Camphor),—an oily fluid, containing 3 parts of CAMPHOR to 1 of PHENIC ACID,—is used, in combination with a fatty vehicle, for **Anodyne** *Inunctions* in the Itching of *Herpes*, of *Furuncles*, in *Prurilus vulvæ*, etc.

– *Subcutaneously*, it at first causes a burning sensation, followed by complete **Local Anesthesia.**

—*Internally*, it is given in *capsules* containing 5–10 drops.

Creolin.—(*Additional to* BULLETIN *No. 3.*)—As an **Anti-Parasitic** and **Antiseptic** for the *Intestinal Tract,* it is highly recommended by Dr. HILLER (in No. 27 of the *Deutsche Medizinische Wochenschrift*) on account of its **Non-Toxic** and absolutely **Non-Irritant** qualities.

It was found of excellent effect in Meteorism, Intestinal Stenose, Typhlitis, Ileac Catarrh, Chronic Intestinal Atony with Constipation, and Ileac Typhus.—Its rapid and certain action in suppressing the Fermentative processes was likewise demonstrated in Acute Gastric Catarrh, in simple Diarrhea, and in Cholera Infantum.

Dr. H. prescribes CREOLIN in doses of 0.3–0.5–1.0 gramme [about 5–8–15 grains], say three times per day, one hour after meals. On account of its disagreeable taste, it is usually exhibited in Gelatin *capsules.* (This form is, however, to a certain extent a drawback in Infant practice, from the difficulty of inducing young infants to swallow the capsules.)

It has also been used with entire success in *Tænia solium* and *Oxyurus vermicularis;*—1 gramme [15 grains], in capsules, three times a day, being employed.

—Dr. M. KORTÜM makes good use of CREOLIN as a Non-toxic **Hemostatic** and Antiseptic in *Uterine Atony post partum.*

—According to recent observations by Dr. BEHRINGS, of Bonn, the effect of Creolin is *less* marked in Albuminous fluids than in Non-albuminous.

Cytisine—the ALKALOID of *Cytisus laburnum* (Golden Chain, or Bean Trefoil)—according to Prof. KOBERT in Dorpat, is a very peculiar toxic substance; acting principally on the *Blood-pressure,* which it augments in a very marked degree; *without, however, therein influencing the Heart-action* to any notable extent. It appears that this remarkable effect is attained *entirely by vascular contraction,* proceeding from the Vasomotor centre in the brain, on which alone the drug acts directly.

The NITRATE is the most favored of the Cytisine-salts.

—*Subcutaneously,* in doses of 0.003–0.005 gramme [0.045–0.075 grain] per day, according to KRÄPELIN, it acts very beneficially in the so-called *Paralytic Hemicrania.*

Ditaine,—C_{22} H_{30} N_2 O_4,—an **Alkaloid** of Dita-bark, from *Alstonia scholaris, Apocyneæ,*—is an intensive Toxic, acting lethally on rabbits in doses of 0.1–1.15 gramme [$1\frac{1}{2}$–$2\frac{1}{4}$ grains], similarly to CURARE, through *paralysis of the Vasomotor nerves and the muscles,* attended by reduction of blood-pressure.

Eth-oxy-Caffeine (Ethyl-oxy-Caffeine),—$C_8 H_9 (O. C_2 H_5) N_4 O_2$,—as a:

Local Anesthetic by *subcutaneous* injection,—is in certain instances *preferable to* COCAINE; for the latter affects particularly only the nerves of sensation, while ETH-OXY-CAFFEINE exerts a powerful binding action also on the motor nerves. – A 3-per-cent. solution is employed, of which say 1 cubic centimetre [about 16 minims] is injected,—according to T. CÉOLA.

Internally, in *Hemicrania*, DUJARDIN-BEAUMETZ makes very successful use of the following formula:

> Eth-oxy-Caffeine 0.25 gramme [4 grains]; Sodium Salicylate, the same; Cocaine Hydrochlorate 0.02 gramme [1/3 grain]; Linden-flower Water (Aqua Tiliæ) 20 grammes [5½ fluidrams]; Maidenhair Syrup (Syr. Capillorum Veneris) 10 grammes [2¾ fluidrams].—To be taken at one time!

Ethylene Chloride (*Bi-chloride*), as an **Anesthetic**, is highly lauded by Dr. RAPHAEL DUBOIS, who finds it vastly preferable to CHLOROFORM, because, in his experience with it, a 10-per-cent. saturation was found sufficient to produce a two-hours' narcose of calm character, free from any disquieting symptoms.—(It causes, however, a transient *Œdema* of the Cornea, which latter, therefore, during the influence of the drug, exhibits a cyanotic appearance.)

Geranium maculatum, (*Cranesbill*): **Fluid Extract**. — An **Astringent** of superior virtue in *Chronic Diarrheas*, *Cholera Infantum*, *Hemorrhagia*, *Throat Affections*, and *Stomatitis*.—Its active principle is **Geranine.**

Its most decided action is reported to have been observed in *Hemoptysia*, which SHOEMAKER has entirely intercepted by 4-gramme [1-dram] doses of the Extract, repeated hourly.

In Hemorrhages of the Kidneys or Intestines, 20 drops of the Extract are to be given four times per day.

—Externally, a 30-per-cent. *aqueous solution* of the Extract is used in Vascular Eczema, Impetigo, and Pemphigus.

Hyoscine { **Hydrobromate; Hydrochlorate; and Hydriodate** }.—The Salts of HYOSCINE are, according to MITCHELL BRUCE, the best **Sedatives** in *Psychiatric* diseases. They are usually administered *subcutaneously*,—0 0003 gramme [$\frac{1}{2000}$ grain] per injection. —*Internally*, the dose is of 0.0005—0.0013 gramme [$\frac{1}{130} - \frac{1}{50}$ grain].

Dr. I. SALGO reports that 1 milligramme [$\frac{1}{65}$ grain], injected hypodermically, suffices to subdue raving maniacs within 10 minutes; in 100 cases he found the application to fail but twice.

The noted authority of Prof. Dr. FÜRBRINGER pronounces similarly in favor of Hyoscine.

—In *Ophthalmological* practice, the HYDROBROMATE of HYOSCINE is fast gaining ground; because its action sets-in three times as rapidly as that of ATROPINE, and lasts longer.

Indole—$C_8 H_7 N$—is found, along with SCATOLE, in human fæces, which derive a portion of their characteristic odor therefrom.—It has been recognized by NIGGL, and, later on, by ZIPPERER, as the most sensitive distinctive test for the presence of so-called "lignified" or incrusted vegetable cells among pure Cellulose,—which test-object has in late years become of importance for the examination of paper or paper-pulp as to its enduring qualities. The INDOLE reaction herein is more distinct and pronounced than that of ANILINE SULPHATE or of PHLORO-GLUCIN.—(Some of the fibers to be examined are introduced into a drop of aqueous solution of Indole resting on the object-plate of a microscope; then covered by the top-plate; then a drop of Sulphuric Acid of specific gravity 1.25 is introduced by means of a strip of filtering-paper; within a few minutes the lignified cells will become apparent by assuming a red color.)

—For convenience and economy in such uses, the MERCK brand of INDOLE comes put-up in tubes of 0.1 gramme [1½ grains] net.

Iron Albuminate, dry, is an extremely efficient remedy in *Anemia*, and is particularly eligible in hot climates, in view of its *stability*.

It is used with signal success in *Beri-beri* (an acute disease occurring especially in the East Indies, and characterized by great muscular debility, a painful rigidity of the limbs, and cachexy.)

Is-apiol —$C_{12}H_{14}O_4$—was obtained by CIAMICCIAN and SILBER from *Apiol*, by treatment with Alcoholized Potassa.—CERVELLI and LUSSANA have investigated its physiological action, and found that it exerts a marked effect on the Vaso-motor system. The result of a dose of 0.2–0.4 gramme [3–6 grains], internally, after an hour's lapse, is a *Stimulation of the Heart;* larger doses, say of 0.6–0.8 gramme [9–12 grains], occasion a discrete pulse, which lasts for several days. Accessory effects noticed were: Headache, and transient derangement similar to that of alcoholic intoxication.

Is-atropyl-Cocaine, - C_{19} H_{23} N O_4, —a secondary Alkaloid obtained in the manufacture of Cocaine from Coca-leaves,—is described by C. Liebermann as an amorphous solid, turning the plane of polarized light to the left by 29.03°, softening at 65° C [149 F], and decomposing at 90–100° C [194–212 F].

—According to Liebreich, the physiological action of Is-atropyl-Cocaine is eminently toxic, and may possibly form the cause of the toxical accessory symptoms consequent on the administration of even slightly impure Cocaine.

Is-atropyl-Cocaine is a strong **Heart-poison,**—resembling neither Cocaine nor Atropine in its effects.

Jaborandi (Pilocarpus): Fluid Extract,—is recommended by Prof. Waugh in *Erysipelas*; 20 drops every two hours until perspiration ensues. Then medication is suspended until the Erysipelas returns, whereupon the use of the Extract is recommenced as before.—This treatment has achieved remarkable successes since about two years.

Jerubebine is the Alkaloid of the Brazilian plant *Solanum paniculatum* (*Jerubeba*), which is in its native country employed as a remedy in affections of the *Liver* and the *Milt*, in *Cystic Catarrh* and in *Anemia*.—With us, it is chiefly lauded in *Nervous Debility* and *General Prostration*. As it is, however, usually exhibited in combination with Cocaine and Quinine, and other tonics, its own value as a **Tonic** is still undetermined.

Lead Caustic, (*Plumbic Caustic*),—a mixture of 80 parts Caustic Potassa with 20 of Lead Oxide,—is made into so-called **Escharotic Pencils,** which M. Bockhart uses for cauterizing *Pointed Condylomata*.

Lipanin—an excellent new **Succedaneum for Cod-liver Oil**—consists, according to Prof. von Mering's investigations, of purest Olive Oil containing 6 per cent. of pure Oleic Acid.—According to O. Hauser, it is *very readily taken and easily digested*, and its action *equals that of* Cod-liver Oil in incipient Phthisis, in Anemia, in Tissue-waste, and in Convalescence from wasting ailments.

Male Fern (*Aspidium Filix mas*): **Extract.**—This Extract has long been recognized as vastly superior to all other **Tænifuga.** Its *absolute non-poisonousness* has enabled weak patients, as well as children, to take it without danger.

But *not all rhizomes* of Aspidium are equal in their effects; multiplied observation has shown that those *grown on ground formerly volcanic* possess by far the strongest tænifugal action. (My special observation and experience on this point date back some dozens of years, and in consequence I am enabled to prepare an Extract of never-failing efficacy.)

According to the *Wiener Medizinische Wochenschrift*, frequent failures are observed with MALE FERN EXTRACT as a Tænifuge; which failures are, by that journal, attributed to the employment of *too old rhizomes* in the preparation of the Extract.—The rhizomes employed by me according to the directions of the GERMAN PHARMACOPŒIA are *of a pistachio-green color* inside; and only the crop of each current year is used.

The DOSE appropriate for the Extract is commonly *stated too low* in the text-books of *Materia medica;* so for instance, LIEBREICH & LANGGAARD direct the same limits which were hitherto generally usual in practice; viz., 5–10 grammes [77–154 grains]; because no sufficient experimental basis for larger doses was extant.—Now, Professor LIEBREICH (in *Therapeutische Monatshefte*: 1888; June) communicates *a formula of high interest to practitioners*, which he received from Prof. GERHARDT, as follows:

> "In *Tænia solium* the dose of the ASPIDIUM EXTRACT should be of 10–12 grammes [154–185 grains]; in *Tænia mediocanellata*, of 14–16 grammes [216–247 grains];—divided *in Gelatin capsules* of suitable size; less desirably in Water.—If no evacuation ensues spontaneously thereafter, a Cathartic of CALOMEL and JALAP is to be given one or two hours after the Fern."

N. B.—A very essential direction regarding the dispensation of the EXTRACT of MALE FERN is that given by the United States Pharmacopœia, as to *shaking before use;* for a possible sediment consists of **Filicic Acid,** which is the active constituent of the drug.

Mercuro-Succin-imide (*Imido-Succinate of Mercury*).—White, silk-like powder; *easily soluble* in Water; *without reaction on Albuminous fluids.*

According to Dr. VOLLERT (in *Therapeutische Monatshefte:* 1888; page 401), this preparation forms an *extremely valuable* addition to the list of Mercury-salts suitable for **Hypodermics.** Its efficacy *at least equals* that of the older Mercury preparations employed in subcutaneous SYPHILIDOLOGICAL treatment; while *it decidedly excels them* in the following points:

1,—Long-enduring *Stability* of its solutions;

2,—Comparative *Painlessness* of application;

3.—*Slightness of Infiltration* at the point of injection.

Moreover, it is throughout *easily borne*, and is therefore especially well adapted for *ambulatory treatment* (allowing patients to continue at their vocations).

—The MODE OF INJECTION that has been demonstrated by experience as the most eligible is the following:

> A syringe of 1 cubic centimetre [16 minims] capacity is filled with a 1.3 or 2-per-cent. aqueous solution of MERCURO-SUCCIN-IMIDE, —if necessary, with the addition of 0.01 gramme [$^1/_6$ grain] of COCAINE; —and now the injection is applied, *not in the cuticle*, but in the subdermatic cellular tissue. Herein—according to A. WOLFF—the observation of the following precautions will *preclude the formation of Abscesses:*
>
> > "The puncturing of the cuticle *'ad nates'* is not to be performed in vertical direction; but, a stout wrinkle of the adipose layer having been lifted-up by the fingers, the syringe-point is thrust into the wrinkle, in a direction parallel with the surface, until it has reached the middle of the cellular stratum, so that it shall not be too near the dermis, nor touch the subjacent muscular tissue. Then the liquid is *slowly* injected, while the wrinkle is being gently kneaded by the fingers holding it. After the injection is made, repeated passes with the fingers should be carried over the neighborhood, so as to distribute the injected fluid through the tissue."
>
> This operation—which should be preceded by a careful cleansing of the place of injection with SOAP and ETHER—is to be executed daily, *alternating from the right to the left* buttock, and vice-versa.

Dr. VOLLERT claims to have *succeeded in every case*, be it of recent or of long-standing *Lues*, which he treated with the above-named preparation; and it was only in a few exceedingly obstinate cases that he found it expedient to combine an *Inunction* treatment with the MERCURO-SUCCIN-IMIDE injections.

Mercury { Cyanide; and / Oxy-cyanide }.—(*Partly additional to Bulletin No. 4:*)

—These two Mercury-salts bid fair to come into marked prominence now; and recent experiences point especially to the **Oxy-cyanide** as being destined *to supplant the* CORROSIVE SUBLIMATE. According to CHIBRET (in *Comptes Rendus*: cvii; 119) it is exhibited in solution of 1 : 1500, and is *tolerated far better* than the BI-CHLORIDE. — Also for the disinfection of surgical instruments it shows a superiority to the SUBLIMATE, in *not attacking the metal*, when used in solutions of same strength as the Sublimate. — In the disinfection of bacterialized Peptone-fluid, it exhibited *six times the Bactericidal force* of the BI-CHLORIDE; that is, a solution of MERCURY OXY-CYANIDE of 1 in 12,000 acted equally to one of MERCURY BI-CHLORIDE of 1 in 2,000.

—In regard to the simple **Cyanide**, the report of Dr. STELLDÉN (of which an abstract is given in No. 4 of the BULLETIN), on his successful treatment of *Diphtheria* by means of this salt, distinctly states that *no topical application by the brush* was needed in the treatment described.

Muira puama: Fluid Extract.—(*Additional to* BULLETIN *No. 3:*)—The name of this extraordinarily potent **Aphrodisiac** indicates its character. In the Brazilian aboriginal vernacular, "Muira" signifies "Wood," while "Puama" means "Potency."

In its native country (Brazil), the plant is used in the form of an Alcoholic Infusion of the root, stems and leaves; enjoying a most eminent reputation as a remedy for *Rheumatism* and for *Impotency*.

—The botanical identity of this plant seems to be still a matter of doubt; it has been suggested that "Muira puama" might be identical with "Mara puama," which is held to be the *Liriosma ovata* (*Oleineæ*) of MIERS.

Naphthol, Alpha-.—Reported by MAXIMOWITSCH as an **Antiseptic** of extraordinary efficiency in hindering the development of pathogenic micro-organisms.—In solutions containing from 1 to $2\frac{1}{2}$ parts of the drug in 10,000 of liquid, it intercepts the propagation of the *Typhoid* and the *Tuberculose* bacilli; while it is reported to be 700 times less active in specific physiological effect on the human organism than MERCURY BIN-IODIDE.

As to its **Anti-Zymotic** effect,—1 part of ALPHA-NAPHTHOL to 10,000 of Glucose-solution prevents the latter from passing into Alcoholic fermentation!

Ouabain and **Strophanthin.**—(*Additional to* "OUABAIN" *in* BULLETIN *No. 4:*)—According to investigations recently made by E. GLEY, the two Glucosides named above are *related very closely* in their *chemical* natures, and hold a correspondingly close mutual relation in their *physiological* actions.—STROPHANTHIN is found to possess the formula of $C_{31}\ H_{48}\ O_{12}$; and OUABAIN that of $C_{31}\ H_{46}\ O_{12}$;—so that they appear as members of one common *homologous* series,—each member differing from the next by a constant increment or decrement of $C\ H_2$.—*Both are Heart-poisons*, intensifying the tension of the heart-muscle, and tending to maintain it in *Systole*. The *lethal dose* of OUABAIN is stated at $\frac{1}{40}$ milligramme [$\frac{1}{2600}$ grain] for frogs; at $\frac{1}{10}$ mgr. [$\frac{1}{650}$ grain] for Guinea pigs; at $\frac{1}{4}$ milligr. [$\frac{1}{260}$ grain] for dogs or rabbits. The action is

most rapid with subcutaneous or intravenous injection.—OUABAIN is more poisonous than STROPHANTHIN;—death from it results within 6 minutes to 1 hour after administration.

[This seems *to correct the older statement*, based on the first-received reports,—see BULLETIN No. 4! — of the innocuousness of OUABAIN *per os!*—EDITOR.]

N.B.—The spelling of the name "*Ouabain*" seems to be taken from FRENCH sources; the same sound is given to the principal syllables of the word in GERMAN by the spelling "*Uabain*," as there adopted; and on the same phonetic principle the true ENGLISH orthography for the same word would have to read: ***"Wabain."***

Oxy-Propylene-di-iso-Amyl-amine—a newly-discovered synthetic **Alkaloid**—is a colorless liquid, soluble in Alcohol, in Ether, and in fatty Oils. Its physiological action is similar to that of ATROPINE: in large doses it induces epileptic fits; in moderate ones it is a powerful **Heart-tonic** and energetic **Stimulant**,—elevating both blood-pressure and temperature.

Parthenicine—an ALKALOID discovered by Dr. CARLOS ULRICI, of Cuba, in a plant there native: *Parthenium hysterophorus*, (Bastard Feverfew)—forms large rectangular prisms, with pyramids on the four lateral sides. It is odorless, very bitter; *quite readily soluble* in Water,—still more so, however, in Hot Water, in Alcohol, Ether, or Chloroform. It gives colored identity-reactions with Sulphuric Acid and with Potassium Bi-chromate.

—Physiological experiment so far has shown that PARTHENICINE, in hourly doses of 0.05 gramme [¾ grain], possesses the power of assuaging *Neuralgias*; and a case of *Intermittent Fever* has been cured by dosing at 1 gramme [15 grains].

Physostigmine (Eserine) in Veterinary Practice.—The Veterinarian Profession are indebted to Prof. DIECKERHOFF, of Berlin, for researches which have demonstrated the high usefulness of the above-named Alkaloid in the *Colic of Horses*.

The term "Colic of Horses," as usually employed, includes several different degrees and kinds of ailment:—First, there is the *Simple Constipation*, with *Intestinal Rheuma* or *Catarrh*. It is to *this form or stage of disease* that the eminently beneficial action of ESERINE especially applies,—*accelerating the peristaltic movement* and *stimulating the intestinal secretions*.—(But in the *graver forms* of disease, also sometimes included in the simple name of "Colic,"—such as, Arterial Congestion, Intestinal Inflammation, Incipient Gangrene,—Eserine is *useless*.)

The valuable **Purgative** effect of ESERINE on horses is usually attained in the brief time of 30–45 minutes after its administration.

In heavy constipations, combined with a more or less *paralytic condition* of the intestines, other purgatives must be used simultaneously with the ESERINE.

The ADMINISTRATION of Eserine itself *should always be* HYPODERMIC ! – (*or*, as below indicated, INTRAVENOUS). The *dose per injection* is of 0.1 gramme [1½ grains] in aqueous solution. The injection is best applied in the subcutaneous tissues of the upper part of the chest, or directly into the jugular vein. The application *may have to be repeated* after 3–4 hours,—according to the effect attained.

The most favored form of PHYSOSTIGMINE (ESERINE) for hypodermic use is its SULPHATE Salt, which is *readily soluble* in Water.

—Most of the ESERINE-salts (including the SULPHATE) are very hygroscopic ; and therefore, on keeping, they will conglutinate or "bake." (This phenomenon, however,—*as explained in* BULLETIN *No. 4;* under "PHYSOSTIGMINE,"—*is in no wise a sign of deterioration!*)

Quinidine (Conchinine) Tannate, insipid.—A white, tasteless powder; dosed in *Dyspepsia, Diarrhea, Nephritis*, and *Albuminuria*, at 0.3–0.8 gramme [4½–12 grains] twice to four times per day, for adults ; and 0.1–0.15 gramme [1½–2¼ grains], four to six times, for children.

Quinine Albuminate.—Light, whitish or yellowish-white scales ; insoluble in Water ; *soluble*, however, in Hydrochloro-acidulated Water or in Solution of Pepsin.

THIS is a chemical form of Quinine that is *well borne* even by very sensitive patients.

Quinine Oleate.—Yellowish-grey, crumbling mass ; clearly soluble in Alcohol.—Contains 54 per cent. of Quinine.—Highly eligible for *Dermatic treatment*, as the OLEATES possess the faculty, when applied externally by inunction, of easily permeating the dermis, and thus acting *through* the skin on internal organs.

Schinus molle, *Terebinthinaceæ* (*Anacardieæ*), is a tree indigenous to Chili and Peru, but naturalized at Cannes and Nice, in France.—According to LIOTARD, it contains in its seed-kernel, beside a certain resin, the **Alkaloid Piperine,** which bears much resemblance to the constituents of CUBEBS in its action.

According to BERTHERAUD, the fruit of this tree, deprived of its epicarp, powdered, and mixed with a little syrup, is formed into pills and thus used with remarkable success in *Blenorrhea.*

SCHINUS MOLLE being *wholly free from the untoward accessory effects* of CUBEBS, its excellent action both in acute and long-standing Blenorrheas makes it a highly desirable medicament.

—In the same class of cases it is preferable also to KAVA-KAVA; for, possessing the same curative period, it is *largely free from the marked diuretic effect* of the latter drug.

Strophanthus.—(*Additional to* BULLETIN *Nos. 1 and 2 :*)—Regarding the BOTANICAL SPECIES of the various commercial varieties of Strophanthus-seed, BLONDEL'S exhaustive researches have shown that such a species as "*Strophanthus Kombé*" DOES NOT EXIST; what has been distinguished by that name hitherto is simply STROPHANTHUS HISPIDUS.—The suppositional species known as Strophanthus *hispidus ;* S. from the *Niger ;* S. *Kombé ;* S. *minor ;*—*all pertain to one species*, having acquired differences in external appearance merely by the different climatic and territorial conditions to which they had to adapt themselves.

—Hence, it appears to be wholly immaterial which of the various commercial kinds of STROPHANTHUS-SEED be employed, *provided* that its yield of active amorphous **Strophanthin** be established. This alone determines the greater or less value of a given parcel of the crude Seed; and the varying degrees of effect noticed in **Strophanthus Tincture** are ascribable altogether to the mentioned differences in the yield of STROPHANTHIN.

CATILLON showed, for instance, that a sample of seed labeled "Strophanthus Kombé" yielded 16–20 per cent. of amorphous Strophanthin; while from another sample, labeled "Strophanthus hispidus," he could obtain but 12 per cent.

[*See, also :* "OUABAIN and STROPHANTHIN," *in present* BULLETIN!]

Tri-brom-phenol.—Soft, white crystals, of melting-point 95° C [203 F]; obtained by the action of elementary BROMINE on aqueous CARBOLIC ACID. Readily soluble in Alcohol, Ether, or Chloroform; less so in Glycerin, Phenol, Water, or Diluted Alcohol.

According to Dr. F. GRIMM (in *Deutsche Medizinische Wochenschrift :* 1887; 52), TRI-BROM-PHENOL *does not cauterize* the mucous membranes of the mouth,

nose and pharynx, and is wholly indifferent to the dermis. Applied to *fresh wounds* in powder, it occasions a more or less violent burning sensation; the traumatic surfaces are slightly cauterized, and their most superficial portion becomes mortified; but *the adjacent parts are never attacked* in the least. *Granulating wounds* are briskly irritated,—sometimes passing into slight bleeding; but a more profound disintegration never takes place. Hence, this substance may usefully be employed *for stimulating pale atonic granulations.*

GRIMM also pronounces it *an energetic and reliable* **Disinfectant** in Purulent and Gangrenous processes.

He recommends a 3-per-cent. or 2-per-cent. solution of it for impregnating Wound-dressing material; for Ointment preparations; for disinfecting the bacterio cultural Gelatin-solutions; etc., etc. (Cultures of *Staphylococcus pyogenes*, for instance, were destroyed within half an hour by a 1-per-cent. solution of Tri-brom-phenol.)

—TRI-BROM-PHENOL, taken *internally*, enters into combination with the alkaline Intestinal secretions, and passes off through the urine in the form of *Tri-brom-phenol-sulphonic Acid.*

Ulexine.—ALKALOID from *Genista tinctoria* (Dyers' Broom, or Waxen Woad).—Action similar to that of CURARE. In frogs and eels, it paralyzes the *Vagus* and the *Motor nerves;* larger doses paralyse the *Heart* in mammiferous animals. The physiological action of moderate doses culminates principally in augmented Diuresis.—In *Dropsies* and *Heart-diseases,* ULEXINE has been successfully given as a **Diuretic.**

E. MERCK.

H. 3

☞ **MONTHLY hereafter!** — (SEE NOTICE ON PAGE 64.)

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MERCK'S BULLETIN

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Entered at the Post-Office, New York, as Second-Class Mail-Matter.

Acid, Camphoric.—(*Additional to* BULLETIN *No. 4:*)—

The topical applications reported-on before the BERLIN MEDICAL SOCIETY, which showed **Styptic** action on the mucous membranes within two minutes, were in some instances *as weak as ½ per cent.*

The special cases for which particular strengths of solutions for topical application were recommended by the report, are as follows:

1. In *Acute Angina:* ½–1 per cent., every three hours.

2. In *Acute* and *Sub-acute Pharyngo-Laryngitis* and *Tracheitis:* ¼ per cent., rising to 1 per cent.,—by Spray.

3. In *Acute Coryza:* 2 %, by Cotton-wool Tampon.—(Previously noticed!)

4. In *Acute Bronchitis:* 1–2 per cent., by Laryngeal Douche.

5. In *Laryngeal Ulcers:* 2–6 per cent., by Spray.

Furthermore, Prof. FÜRBRINGER, in addition to his previous statements, reports cures of *Cystitis* combined with Ammoniacal Fermentation, by Cystic Injections of 2-% solutions.

Dr. M. NIESELS confirms Prof. F.'s (previously noticed) views of CAMPHORIC ACID as of a **Mild, Non-irritant Antiseptic.**

Acid, Chromic,—as a **Local Anti-Diaphoretic.**—The *Deutsche Medizinische Zeitung* (page 914 of 1888) reproduces an Official Decree by the ROYAL PRUSSIAN WAR DEPARTMENT, recommending the use of CHROMIC ACID "as the best and most harmless *Preventive of Foot-Sweat* in Marching Troops."

The application consists in merely once "painting" the sole, and the inner surfaces of the toes, with a 10-% solution of the Acid, by means of a cotton-wool wad. (The dipping of the wad into the solution should be effected by a pair of cork tongs.)

The effect is instantaneous. In medium grades of the sweating disposition, a few applications, at intervals of 6–8 weeks, suffice completely; in worse cases a repetition every 2 or 3 weeks may be needed at first.

When the cuticle is already broken by abrasion, etc., it is advisable to begin the treatment by using a 5-% solution only, repeated daily, for some days in succession, until the dermis has regained sufficient compactness to bear stronger applications.

Bismuth Salicylate.—By this name the Drug Market carries several preparations *widely different* in their chemical compositions, and consequently also in their physiological actions.—A TRUE BASIC BISMUTH SALICYLATE, in order to possess the properties desirable for its specific medical uses,—especially to be borne by the Stomach without irritation,—must be a *definite chemical combination*,—NOT a mixture of an Acid Salicylate with Bismuthous Oxide; and its Salicylic Acid must therefore be chemically *bound* to the Base, so as *not to be dissolved-out* from the Salt by mere physical solvents, such as Ethylic Alcohol, Ethylic Ether, or Chloroform.

Basic Bismuth Salicylate Merck contains, by analysis, 63 per cent. of Bismuthous Oxide in chemical combination with Salicylic Acid, and contains *No Free Salicylic Acid.*— Dr. E. EHRING, in the *New-Yorker Medizinische Presse* of Sept. 1888, reports on his experiences with this particular preparation of MERCK'S, especially in the most various **Gastro-Intestinal complaints of Infants.**

A well-prepared BASIC BISMUTH SALICYLATE,—such as the one reported-on by Dr. EHRING,—as stated by him, is very desirable in the entire class of complaints named, for the following reasons:—It is at once **an Astringent and an energetic Disinfectant**; it is *free from untoward accessory effects*, and is *readily taken* by the young patients;—thus, it can be used without harm during a protracted course of treatment.

> The most eligible form of exhibition is that of a *Shake-mixture*,—as follows:—Bismuth Salicylate, *Basic*, 4 or 5 grammes [62–77 grains]; Water 100 grammes [3 fl. oz. and 3 fl. dr.]; Glycerin 12–20 grammes [3 fl. dr. and 12 minims *to* 5 fl. dr. and 24 min.].—Tea- to Dessert-spoonful every 2 hours.
>
> The form of *Powders* is NOT so advisable; as irritations, and even Ecchymoses, of the Gastro-Intestinal tract have been observed after their use.

Cerium Oxalate, Cerous.—After being approved since a number of years as a useful **Sedative** in *Hemicrania*, *Vomiting of Pregnancy*, *Hysteria*, in the *Cough of Phthisis*, and as a **Soothing Astringent** in *Gastro-Intestinal Catarrhs*,—CERIUM OXALATE has again recently been very favorably reviewed by Dr. GARDNER, of New York, in most of the directions named. He believes it to exercise,—*besides* its *Topical* action on the mucous membranes of the stomach and intestines, above indicated,—also a peculiarly *Sedative* action on the Vagus and Sympathicus nerves, whereby he explains its calming effect on the phthisical symptoms. In the various ailments above and hereinafter indicated, and discussed by him, he observed *no ill effects* from its use, *even when as large doses as* 1½ *grammes* [23 grains] were repeated *several times a day;* while the average single dose recommended by the older authors varied from 0.05 to 0.15 gramme [¾ of a grain to 2¼ grains].

The principally striking feature of Dr. GARDNER'S report, however — (aside from his confirmation of the efficacy of CERIUM

OXALATE as a mild Internal Astringent and a Nervine, and the establishment of its harmlessness in much larger doses than those formerly employed)—consists in his pronouncing it **the best Specific against Sea-Sickness** that has so far become known, when given in doses as large as 0.6–0.9–1.2 gramme [9–15–19 grains] every three hours, in a tablespoonful of Water.

Ephedrine, Hydrochlorate.—(*Additional to* BULLETIN *Nos. 2 and 3 :*)—This ALKALOID-SALT appears, as prepared by me, in colorless needles, melting at about (uncorrected) 210° C [410 F], easily soluble in Water; less so in Alcohol; insoluble in Ether. Its aqueous solution was found, by Mr. KINNOSUKE MIURA, of Tokio, Japan,—who made an extensive series of exact Clinical experiments on it,—to be permanent under the influence of light.

The SIMPLE ALKALOID, (discovered by Prof. NAGAI), which is the base of the above-described salt, is also obtainable in colorless crystals. The Clinical experiences hitherto gathered do, however, invariably refer to its HYDROCHLORIC SALT.

—(From other species of *Ephedra* than the one previously mentioned as the source of EPHEDRINE, I have succeeded in isolating a different Alkaloid, which I have so far named **"Pseudo-Ephedrine."** Its Hydrochlorate is very readily soluble both in Water and in Alcohol. From an alcoholo-ethereal solution, it crystallizes in colorless needles or leaflets, which melt at about (uncorrected) 174–176° C [averaging 347 F].)

The researches of KINNOSUKE MIURA with the **True Ephedrine** HYDROCHLORATE,—dating back to the year 1885,—first demonstrated its **Mydriatic** action, when applied *externally*, on frogs and mammals, and its *Lethal effect*, when given in sufficient dose *internally*, through arrest of the *Heart-action* and *Respiration.*

The results of those first researches, made at Prof. OSAWA'S suggestion,—and under his control,—are reported in a preliminary outline sketch by the above-named operator, K. M., in the following words:

> "1. *Preliminary Experiments on Frogs.*—From 8 to 10 milligrammes [about 1/8 to 1/6 grain] were injected into the pericardium or lympheduct of average-sized individuals of *Rana esculenta.*—Gradual *retardation*, and final

arrest, of Respiration; no accelerative period observed. Same effect on Heart-movement, which ceased in Diastole.—Dilatation of Pupils.

"2. *On Mammals* (Rabbits, Dogs, Mice).—Both Respiration and Pulse were remarkably *accelerated*, and afterwards suddenly arrested, without previous retardation. Clonic Spasms, and increased Temperature in rectum. Blood-pressure in the carotid at first diminished; then augmented beyond the normal, during the spasms; then again rapidly dropping. Death by arrest of Heart-action and Respiration.—Dilatation of Pupils, both by Subcutaneous injection and by Instillation into the Conjunctival sac.

"3. *The Lethal Dose*, hypodermatically, for Rabbits was 30 to 46 parts, and, for Dogs, 22 parts, to each 100,000 of the animal's weight."

The CLINICAL EXPERIMENTS on the HUMAN EYE, with regard to the **Mydriatic** effects, were conducted in the CHIRURGO-OPHTHALMOLOGICAL CLINIQUE of TOKIO UNIVERSITY, under the direction of Prof. SCRIBA and Mr. KONO, in 1887. The results are outlined by K. M. s report as follows:

(Experiments with *Six- or Seven-per-cent. Solutions* yielded rather *unequal effects* on different individuals. A number of patients underwent the application of such solutions to the Eye, from 1 to 4 times [repetitions after 10–15 minutes' intervals]. Dilatation of the Pupil ensued in most cases, but not in all,—and after rather unequal lapses of time.)

Experiments with a TEN-PER-CENT. SOLUTION, applied to the Eye, on the contrary, yielded *much more exact, uniform, and reliable results.* The effects from these applications showed *almost identical degrees of intensity* in the majority of the cases treated,—among which cases were both, a number of healthy subjects, and a number of sufferers from various Ophthalmic complaints.

There were 18 cases thus treated by instillation of 1–2 drops of the 10-% solution, and closely observed. *Dilatation* of the pupils of *both* eyes ensued in each case, after a lapse of from 40 to 60 minutes.

The Dilatation was of the *same* magnitude in both eyes, *whenever* the Refraction was the same in both, and provided no inflammatory symptoms were previously present. The Dilatation was not of the possible maximum, but amply sufficient to afford a convenient survey of the entire surface of the Retina, on a vertical presentation.—Strong

impact of light would in all these cases occasion a slight reaction in the pupils.

Suspension of the *Accommodation* was either barely, or not at all, perceptible; likewise, no augmentation or diminution of the *intra-ocular pressure* could be shown.

Children and aged persons proved more susceptible to the drug than vigorous individuals.—An irritated and inflamed Iris precluded any definitely appreciable dilatation.

The *duration of the Dilatation*, from the moment of application until the return of the perfectly normal state, varied from 5 to 20 hours; while, under precisely similar circumstances, cases treated with a 1-% solution of HOMATROPINE required 69 hours for the complete restoration of the pupil.—Untoward accessory effects, such as Conjunctivitis, etc., were *not* observed, even after protracted treatment,—lasting as long as a fortnight in some cases. (One patient, for instance, underwent three instillations per day of the 10-% solution for 15 days, without experiencing the slightest evil effect.) Altogether, therefore, it is *very well borne* by the patients.

—("With some of the patients treated as above described, *Special Experiments* were made as to *the degree of Suspension of Accommodation* observable.—With 3 of these patients, no such suspension was observed at all; a fourth individual exhibited a *lengthening of the minimal focal distance* by only 15 millimetres [nearly 0.6 of an inch]. Two of these patients underwent the instillation 3 times each, at intervals of 10 minutes; two others suffered it 7 times each, at like intervals.—*Neither of these required a longer period* for the return of the normal pupil dimension, than above stated,—that is, 20 hours at the longest!")

From these evidences, KINNOSUKE MIURA infers that TRUE EPHEDRINE HYDROCHLORATE may be considered *a convenient* **Mydriatic,** and *an adequate* and desirable *Succedaneum for* HOMATROPINE in examinations of the Fundus of the Eye.

—(As for the physiological action of "PSEUDO-EPHEDRINE,"—which Alkaloid was mentioned further above,—Prof. KOBERT, of DORPAT UNIVERSITY, is at present investigating it.)

The **Kava-Resins,** and **Kavahin** (*or* **Methysticin**).—KAVA-KAVA, or AVA,—the name by which the root of *Macropiper methysticum* is known to the natives of several Polynesian island-groups, where the plant is indigenous,—signifies, in the native idiom, "exceedingly sharp-tasting"; while the specific part of its botanical name indicates its intoxicating qualities when prepared as it usually is by the Polynesians.—It appears that the well-known, peculiarly *sedative* and *benumbing* character of the Kava intoxication, as contradistinctive to that of Alcohol, for instance, justifies the conclusion that those intoxicating qualities whose regular use by the Polynesian natives first attracted the attention of physicians to the plant, are not alone due to alcoholic fermentation induced by the native process of preparing the juice, but also to an organic principle contained in the plant. The same principle which appears to bear the main part in the intoxication symptoms, is probably also the one which at first occasions the sharp, biting taste on the tongue that procured the plant its aboriginal name,—and which *afterwards* leaves the tongue *almost devoid of sensation* for a certain time.

Meanwhile, it has not yet been determined whether the distinctively pronounced **Diaphoretic** and **Diuretic** effects, to which the high estimation of the root among the South-Sea Islanders as an **Anti-Gonorrheic** and **Anti-Cystitic** is due, are occasioned by the same organic principle which causes the previously-named effects, or by a different substance. But the fact has been established that the various medicinal virtues of the *Kava-root* are pretty fully concentrated in the *two peculiar Resins* first isolated from the root by LEWIN, and which are also prepared by me:

Alpha-Kava-Kava-Resin, and
Beta-Kava-Kava-Resin.

They present all the specific effects of the *Crude Drug Kava*, as **Local Anesthetics,** when brought in contact with the Conjunctiva, the Cornea, the Tongue, etc.

—In contradistinction hereto, the crystalline, odorless and insipid *Neutral Principle* KAVAHIN or METHYSTICIN, which has been isolated from the same root, beside the Resins mentioned, is reported by LEWIN as *possessing no physiological action.* It is obtained in the form of

silky, resplendently white needles, soluble in Alcohol and in Ether, and melting at 130° C [266 F].—Its chemical nature was established in 1888 by C. POMERANZ as that of a derivative of the Methylenic Ester of Pyro-catechin.

"Meco-narceine."—Little as is known, thus far, of the actual constitution of this substance,—so much appears to be settled, that it is not by any means a clearly definable natural constituent, or natural group of constituents, of Opium, but merely *an arbitrary and indefinite product*, consisting of a mixture of NARCEINE with *several other* Opium constituents ; which mixture is said to possess a higher degree of solubility than Narceine alone.—According to LABORDE'S statements before the ACADEMY OF MEDICINE at Paris (France),—which, however, were questioned on the spot,—"MECO-NARCEINE" is described as a very efficient internal medicament in *Insomnia*, *Morphinism*, and *Bronchial Affections*. But, in view of the utterly vague and uncertified nature of its composition,—owing to the *total absence of both qualitative and quantitative data* as to its constituents,—any statements made as to its DOSAGE and EFFECTS must be considered equally unreliable for practice.—In fine, on the grounds stated, "MECO-NARCEINE" must be considered an offspring of commercial speculation,—and an addition of but dubious value to the *Materia Medica*.

E. MERCK.

NOTICE TO SUBSCRIBERS.—The pressure of *New Matter* crowding upon the pages of this periodical has caused me to *change its mode of publication* from a "Bi-monthly" issue (appearing every *second* month), as hitherto, into a MONTHLY.—From January, 1889, the "BULLETIN" will be issued *every* month; *no change* taking place in the *Subscription Price*, which remains ONE DOLLAR PER YEAR, as at present.

E. M.

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